Project document

Information and Communication Technology (ICT) for development of small and medium-sized exporters in Latin America: Peru

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Abstract

While there is little understanding of the current and future impact of ICTs on industrial and commercial activities in countries like Peru, there is even less understanding of exactly how such advanced technologies can address wider social and economic issues —the priorities of poor and disadvantaged groups— such as those represented by small enterprises. It is therefore essential to keep government and society informed on the real issues arising from this new wave of technological development.

Within the private sector, large enterprises play a crucial role in the long-term development expectations of Peru, and are likely to form the cornerstones of that development, focusing on the primary sectors of mining and fishing. Nonetheless, small enterprises are also important because they play a pivotal role in creating the jobs and incomes that large companies fail to produce in sufficient quantities. Over the long term, small firms are needed to create a more flexible and lower-cost foundation for development. Small enterprises, however, are subject to increased competition as well as greater demand for higher quality products and services. Surviving in this competitive environment will require raising the overall productivity of small enterprises, which in turn will need higher levels of management capacity. The ability to acquire, process, and effectively use ICT tools will be crucial in this setting. Accordingly, it is important to accept that ICTs have the potential to transform access to information, improve internal information systems, and enhance the methods and scope of information dissemination. The extent to which small enterprises can actually benefit from such potential is unclear, however, and the report will investigate this through a number of cases studies.

I. The current situation in the IT Market and IT use by SMEs

A. Market Estimates

Before describing the situation of IT markets we will briefly review the Peruvian social and economic situation. The economy is in the midst of a cyclical slowdown, and growth remains well below potential.

According to the Central Reserve Bank of Peru (BCRP) (see table 1), the economy grew by 3.9% in 2003. In that period, improved global conditions were revealed through higher commodity prices, which boosted Peruvian exports. Exports grew by 5.0% in real terms in 2003. The domestic economy also experienced an improvement.

TABLE 1
PERU SELECTED AGGREGATE DEMAND COMPONENTS
(In percentages)

	2002 (Full Year)	1Q03	2Q03	3Q03	4Q03	2003 (Full Year)
GDP	4.9	6.0	3.6	3.5	2.5	3.9
Domestic Demand	4.1	6.0	2.6	3.9	2.1	3.6
Private Consumption	4.5	4.5	3.0	2.9	2.8	3.3
Public Consumption	1.6	6.1	1.9	2.5	**7.3**	4.5
Private Fixed Investment	0.2	6.9	4.9	6.6	2.3	5.1
Public Fixed Investment	-5.0	8.0	-3.3	-3.8	**16.7**	5.0
Exports	6.8	7.1	7.6	1.8	4.0	5.0

Source: Central Reserve Bank of Peru.

Private consumption expanded by 3.3%, slightly less than growth in the economy as a whole. Real private fixed investment ended 2003 at 5.1% above the 2002 figure. Nonetheless, recent international trade data reveal a drop in capital imports in the manufacturing sector,

suggesting deterioration in local private-sector sentiment. The political turbulence that flared up in mid-2002 appears to have shaken local investor confidence throughout last year, and private capital spending and employment creation may be at risk. In fact, since mid-2003, there has been a slowdown in the key components of domestic demand, including private consumption, investment, and employment, probably caused by ongoing political uncertainties. Nonetheless, growth of 3.5% is still likely in 2004 and 2005.

Ongoing political uncertainty may continue to thwart domestic investment spending and employment creation, suggesting moderate downside risks for the forecast scenario (see table 2).

TABLE 2
PERU: DEMOGRAPHIC AND OTHER INDICATORS

Population	(*millons*)	27 346 612
GDP	(*millions of dollars*)	60 976
GDP Per Capita	(*dollars*)	2 230
Inflation rate	(*% var. consumer price index (12 month average)*)	2.26
Poverty 2002	(*percentage*)	54.5
Foreign investment in Communications	(*millions of dollars*)	3 707
Country Risk rate	(*annual average*)	429

Source: Comisión Multisectorial para el Desarrollo de la Sociedad (CODESI), Report on the Peru Assessment on the Information Society, 2004.

B. The IT market in Peru

Figures published by Dominio Consultores valued the Peruvian IT market at around US$ 559 million in 2003, including US$ 298 million in hardware, US$ 61 million in software and US$ 200 million in IT related services. In 2002-2003, the Peruvian IT market grew by 5.1% (US$ 521 million) with a strong boost from the software sector.

TABLE 3
PERU ICT INDICATORS IN A GLOBAL CONTEXT

Country	GDP per capita (US$)	Score (%)	Fixed telephone lines per 100 habitants	Score (%)	PCs per 100 habitants	Score (%)	Internet users per 100 habitants	Score (%)	Total score (%)
Argentina	7 266	20.48	21.63	29.27	5.34	8.58	10.38	16.05	17.96
Brazil	2 986	8.42	23.1	31.25	6.26	10.06	7.27	11.24	17.52
Chile	4 312	12.16	23.9	32.34	8.39	13.48	20.02	30.95	25.59
Colombia	2 021	5.70	17.05	23.07	4.21	6.76	2.7	4.17	11.34
Spain	14 390	40.57	43.11	58.33	16.82	27.02	23.48	36.30	40.55
USA	35 470	100	66.45	89.91	62.25	100	58.5	90.45	93.45
Mexico	6 090	17.17	13.48	18.24	6.87	11.04	3.49	5.40	11.56
Peru	1 923	5.42	7.75	10.49	4.79	7.69	11.5	17.78	11.99
Uruguay	5 737	16.17	28.29	38.28	11.01	17.69	11.9	18.40	24.79
Venezuela	5 115	14.42	11.2	15.15	5.28	8.48	5.28	8.16	10.60
Sweden	23 550	66.39	73.91	100	56.12	90.15	64.68	100	96.72

Source: Telefónica del Perú (2002), La Sociedad de la Información en el Perú. Presente y perspectives, Lima, November.

The forecast for 2004 predicts an IT market of US$ 580 million, with a growth rate of 3.7% compared to 2003 figures.

Peru's position in the global context can be shown through ICT indicators, using a compound index based on the number of fixed lines, number of PCs, and the number of Internet users per 100 inhabitants. To rank each country, we use the index of the most developed country, based on these variables, to calculate the proportional average for the remainder. Table 3 shows the results for selected countries including Peru:

Over the last decade, the telecommunications sector has grown as a result of privatization and market liberalization, to produce the following indicators for 2003:

TABLE 4
COMMUNICATION NETWORK AND SERVICES INDICATORS, TELECOMMUNICATIONS 2003

Fixed and Mobile Telephony	
Fixed telephone lines	1 839 165
Mobile lines	2 908 819
Public telephone lines	123 002
Fixed telephone density [a]	6.73
Mobile service density [a]	10.64
Public telephone density [b]	4.50
Mobile base stations	1 660
Fixed telephony bases [c]	424
Public telephones installed by FITEL	6 482
Broadcasting	
Radio broadcasting stations AM	503
Radio broadcasting stations FM	1 503
Television stations	936
Cable TV subscribers	417 231
Other indicators	
LDN/LDI carriers	84
ADSL users	66 693

Source: Comisión Multisectorial para el Desarrollo de la Sociedad (CODESI), Organismo Supervisor de Inversión Privada en Telecomunicaciones (OSIPTEL) and Ministerio de Transportes y Comunicaciones (MTC).

[a] Lines per 100 inhabitants.
[b] Lines per 1000 inhabitants.
[c] Data as of 2001.

In brief, the main telecommunication indicators display a fixed telephone density of 6.73 lines per 100 inhabitants, with mobile phone density of 10.64 per 100 inhabitants.

Internet has existed in Peru since 1991. The first ISP was Red Científica Peruana (RCP). Since then, Internet penetration has grown from 1.98 users to 10.5 users per 100 inhabitants. Connection methods have also begun to diversify, with ADSL displaying growth rates of up to 1,100% per year (see table 5).

A study of the distribution of Internet access points in Peru Apoyo (2002) showed that 72% were in tele-centres, followed by schools, with the workplace ranked third (see figure 1).

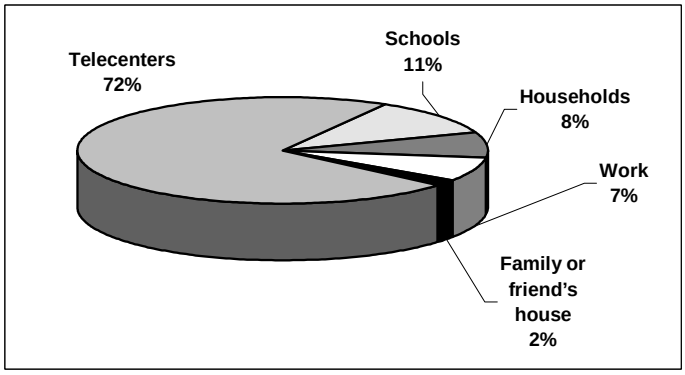
TABLE 5
INTERNET USAGE IN PERU

Indicators		1998	1999	2000	2001	2002 [b]	2003 [c]
Internet							
Number of Internet users [a]	(*thousands*)	300	500	800	2 000	2 400	2 850
Personal computers	(*thousands*)	750	900	1 050	1 250	1 482	1 758
Density							
Internet users	(*per 1000 inhabitants*)	12.1	19.8	31.2	75.9	89.7	105.0
Computers	(*per 100 inhabitants*)	3.0	3.6	4.1	4.7	5.5	6.5

Source: Consultora MAXIMIXE Perú. Historical data ITU, BCRP, OSIPTEL.

[a] Person with access to the service. [b] Calculated data. [c] Projected data.

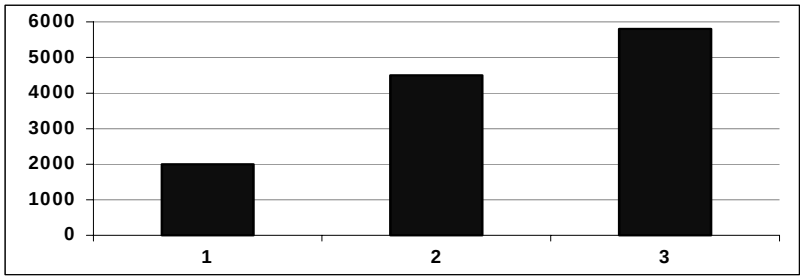
FIGURE 1
INTERNET ACCESS IN PERU
(In percentages)



Source: Apoyo Investigación y Mercado, 2002.

In 2003 there were about 5,700 Internet tele-centres across the country, according to ASPESI (one of the Peruvian tele-centres association) data (see figure 2). In 2000 the Peruvian NAP (Neutral Access Point) started operations sponsored by AT&T, Bellsouth, COMSAT, RCP and Telefónica del Perú, with the aim of maintaining a quality, broadband, and high availability national network without the need for internal Peruvian traffic to first go outside and then return, thereby achieving faster and affordable Internet communications.

FIGURE 2
GROWTH OF PUBLIC INTERNET TELE-CENTRES 2001-2003



Source: Apoyo Investigación y Mercado, 2002 and Asociación Peruana de Empresas de Servicios de Internet (ASPESI).

C. Penetration of IT and e-commerce among SMEs

An SME that uses ICT usually displays above average proportional progress in production management and capacity, capital accumulation, accounting, and marketing. The owners of this type of SME usually have university degrees, or acquire management and marketing skills through long-term experience in their industries. While this is not the case for all SME users, there is an undeniable link between the education and experience of business owners and managers and the effectiveness of their Internet usage. On the other hand, many SMEs do not use the Internet and ICT effectively, and this is often due to weaknesses in their businesses as a whole.

Based on a study by "Pro Expansión", in 2004, 50% of SMEs with at least four years in the market were using ICT tools of some kind, but on average only 12% of SMEs had a PC and 19% of them an Internet connection; and 25% of those with Internet connections had developed their own website. These figures explain why e-commerce is virtually non-existent; just 1% of those interviewed mentioned that they used the Internet for selling or buying goods.

The good news to emerge from the study is that almost 75% of the entrepreneurs considered ICT and Internet a necessity. These companies are looking for more professional management standards but are still struggling against internal obstacles. What is becoming more common is that many prospective ICT users are mastering production management, and are able to produce large orders on time, but they are often weak in accounting, marketing, and management skills. Another problem is that companies struggling with credit barriers are becoming less capable in financial management and often find it hard to obtain short-term loans to finance the production of increasingly large orders. One feature common to these SMEs is their awareness of the importance of marketing and the need to reach out to buyers rather than simply wait for them to appear on their doorstep. These companies often realize the importance of Internet for communication and promotion but are not yet ready to go online because they have not overcome various internal constraints.

Patterns of ICT use follow a typical sequence of development, which often begins with e-mail and later, in a few cases, leads to the development of websites and the use of Internet for trade.

The need to communicate with their customers or suppliers is often what drives SMEs to start using e-mail, because it is cheaper than fax and telephone communication. SMEs that already have experience in dealing directly with foreign buyers or suppliers have been quick to adopt e-mail for that reason.

As mentioned above, SMEs that are becoming convinced of the benefits of e-mail for driving sales to existing customers, often do not consider the option of developing a website for promotion and for establishing links with potential new buyers.

We found two types of e-commerce sites operating in Peru:

i) Internationally or domestically-based sites that promote products manufactured in Peru, and

ii) Internationally or domestically based travel and tourism sites that promote Peruvian hotels and travel packages.

II. SME development in the IT revolution

A. Overview of the relative importance of SMEs in the overall economy

Firstly we need a common definition of an SME in Peru. In very general terms, a common feature is that an SME employs less than 50 people, but there are many exceptions. There is no common agreement on what distinguishes a micro-enterprise from a small or a medium-sized firm, but generally, a micro-enterprise employs less than six people.

Definitions used for statistical purposes can differ from those used for policy or programme purposes (for example, to determine eligibility for special assistance). The most common criterion is the number of people employed, but sales figures are also used. The only common feature of SMEs is that they are "not large"; in other words whether a firm is really an SME or not is relative. What constitutes an SME varies widely. SMEs may range from a part-time business with no employees, for example, exchanging money or selling handicrafts, to a manufacturer employing hundreds of people in a textile firm. They may range from fast growing firms to private family enterprises that have not changed much for decades; from SMEs which are independent or stand-alone businesses, to SMEs which are inextricably part of a group, such as international subcontracting networks recently created by Law No. 28015 for the promotion and formalization of the micro and small company, which defines an SME on the basis of the number of employees or the total annual sales according the following range:

- Micro-enterprises of up to 10 employees or annual sales up to 150 Taxation Units (UITs)
- Medium-sized firms from 11 to 50 employees or annual sales up to 850 UITs

Does this lack of precision matter? In some circumstances, it is a real problem, but it depends on the reasons for defining an SME. Obviously, a firm with only one or two employees is not the same one with 100; and this is important when it comes to the specifics of finance, or training programmes for example. Nonetheless, for many purposes it is convenient to split the economy into micro, small, medium, and large enterprises to gain a better idea of the "big picture", where, in terms of the national economy, SMEs are structurally very important. SMEs make up over 98% of the enterprises or establishments and provide about 75% of the private sector jobs. As a result, they are of special social and political importance.

The SME sector is clearly an important part of the productive structure of the Peruvian economy; and in some regions, it represents the only enterprise level, which is the basis of economic activity. It is also clear that a large portion of the labour force consists of independent workers, for which reason there is a lot of instability.

According to the National Institute of Statistics (INEI), in 1996 almost 96% of the firms in Lima employed ten or fewer workers, and in a recent study of the regions of Peru, 95.8% of firms were micro-enterprises. A recent IDB study found that Peru has the second highest labour force concentration in the SME sector, with almost 3 million SMEs or 97.7% of the total enterprise sector. In short, the SME sector accounts for nearly 40% of Peruvian GDP and employs about 5 million people.

B. ICT use by Peruvian enterprises

The importance of ICTs in the new way of doing business in a global and more competitive market is fundamental for the success of any company. Business strategy must be coordinated with ICT strategy to attain the company's goals and objectives.

There is consensus that ICTs offer major opportunities to create competitive advantages in organizations. However, few companies make appropriate and strategic use of these opportunities. They disappear and (the companies) are unable to use them in the correct way. Furthermore, knowledge of information and communication technologies is not enough; it is also necessary to know how to exploit them appropriately.

Technological innovation is changing the way we do business. When its influence reaches information and communication channels, firms need to invest a larger portion of their economic resources in information technologies every year. ICTs are having a greater emphasis on corporate purchases than before, especially since the technology started to become more involved with the business strategy.

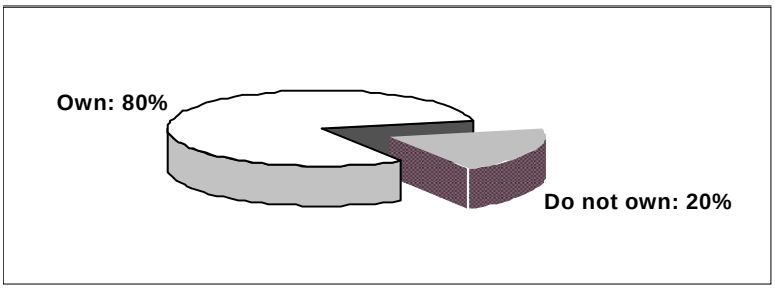
When entrepreneurs were asked about information technologies, the first things that came to mind for many managers were programmes and systems, and the technical support that IT personnel provided to the different departments. This attitude is changing, however. More and more managers now see ICTs as a means to productivity increase and cost reduction inside the organization.

Many executives are reassessing the advantages that the ICTs provide to their businesses, and are taking steps to ensure that their information systems and business units are working together in coordination. They are also confident that ICTs can help manage the business strategically —in harness with an excellent corporate strategy— to increase company profits and achieve success.

Based on the study, represented in figure 3, the survey shows that 80% of businesses nationwide have computers in their workplaces, irrespective of the type, capacity and number of computers.

The other 20% of the 6,769 companies surveyed did not have computers —a result that draws attention to the fact those surveyed were medium-sized and large companies. Accordingly, 20% of the groups of the companies considered medium and large do not have computers (INEI, 2001).

FIGURE 3
ENTERPRISES THAT OWN COMPUTERS AT NATIONAL LEVEL
(In percentages)



Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

Conducting a sectoral analysis and continuing with the established approach, 76.3% of the goods-producing firms in the study owned computers while the remaining 23.7% did not. In contrast, 82.8% of service-oriented companies had computers and 17.2% did not (see table 6).

TABLE 6
COMPUTERS BY SECTOR
(In percentages)

Own computers?	Production	Services
Yes	76.3	82.8
No	23.7	17.2
Total	**100**	**100**

Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

These figures suggest that service-oriented companies are using and implementing computer technology more than those in the productive sector.

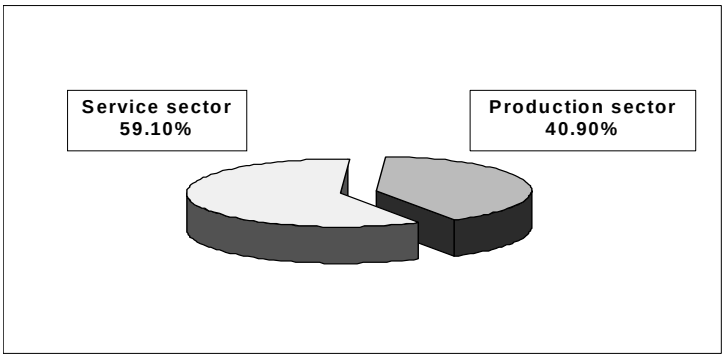
It is important to point out that a relatively large proportion of companies do not have computers, and therefore do not incorporate ICTs in either their functions or labour activities or both. Computer technologies would allow firms to reduce significant operational costs, and provide senior management with timely information for correct decision-making.

1. Companies that have computers, by economic sectors

An analysis by economic sectors shows that of all firms with computers in their workplaces, 40.9% belong to the productive sector and 59.1% are in the services sector. In both cases, the firms have at least one computer and here again the results confirm that the services sector increasingly absorbs technology and technological innovation in its effort to stay competitive and maintain efficiency in a demanding market and globalised economy (see figure 4).

Service enterprises also are also outpacing production companies in the use of computers —firms in the graphics, printing, and design industries, those engaged in financial and consulting services, department stores, computer specialists, advertising companies, and so forth.

FIGURE 4
ENTERPRISES BY SECTOR THAT OWN COMPUTERS
(In percentages)



Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

2. Companies that have computers, by workspaces at the national level

Data on the number of computers in an enterprise's various workplaces show that in the administration area, 65.2% of companies with computers have between 1 and 5 PCs, 16.3% have between 6 and 10 units, 5.8% have between 11 and 15 units, 3.7% from 16 to 20 computers, and 8.9% of all companies with computers in the administration area have over 20 PCs (see table 7).

TABLE 7
DISTRIBUTION OF COMPUTER USE BY AREAS
(In percentages)

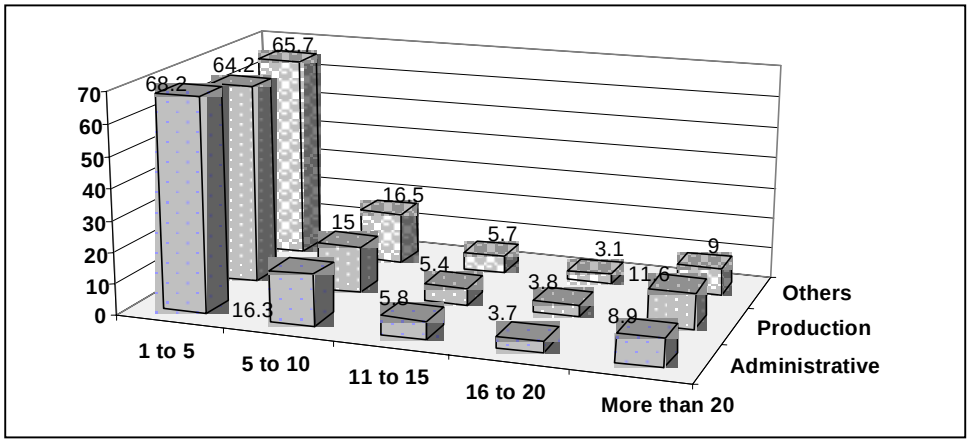
Number of computers	Administrative	Production	Other areas
1 to 5	65.2	64.2	65.7
6 to 10	16.3	15.0	16.5
11 to 15	5.8	5.4	5.7
16 to 20	3.7	3.8	3.1
More than 20	8.9	11.6	9.0
Total	**100**	**100**	**100**

Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

Similarly, in the production area, 64.2% of all firms with computers have between 1 and 5 PCs —a figure that seems to echo the figures in the administration area; 15% have between 5 and 10 PC's, 5.4% of companies have between 11 and 15 units, 3.8% have between 16 and 20, and finally 11.6% of companies with computers in this area have more than 20 PC units (see figure 5).

In the area classified as "Others" the figure is similar for the first range of computers: between 1 and 5 units, 65.7%; in addition, 16.5% of firms with computers in this area have between 5 and 10 PCs, 5.7% have from 11 to 15 PCs, 3.1% have between 16 and 20, and just 9% have more than 20 PC's.

FIGURE 5
ENTERPRISES THAT USE COMPUTERS SEGMENTED BY FUNCTIONAL AREA



Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

3. Technologies used for networking in firms

To achieve physical connection among their highly varied hardware (workstations, servers, computers), and peripherals (printers, plotters, gateways, etc.) for the transmission of information and to share resources with very short access times, companies today use different types of network, depending on distance (local, metropolitan, national, international, etc.), and the quantity of information and transmission speed needed.

The data in table 8 below shows that 55.9% of firms with computers nationwide are connected to at least one network.

An analysis at the economic-sector level shows that 53.6% of firms with computers in the productive sector have a network, compared to 57.6% in the services sector.

On the other hand, data on firms that do not have computers, or are not connected to a network, show that 44.1% at the national level do not have network access of any type. In the specific case of goods-producing firms, 46.4% do not have a network connection, while the figure for service providers is 42.4% (see table 8).

TABLE 8
NETWORKS IN ENTERPRISES
(In percentages)

Networks	Total	Production	Services
Have	55.9	53.6	57.6
Do not have	44.1	46.4	42.4
Total	**100**	**100**	**100**

Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

4. Type of networks connected in firms

The results show that 51.1% of firms with a local area network installed have more than one network. The other types of networks, albeit insignificant compared to LANs, are discussed below (see table 9).

TABLE 9
CONNECTED NETWORKS
(In percentages)

Type of network	Total
Local area network (LAN)	51.1
Metropolitan area network (MAN)	2.4
National corporate network	2.5
International corporate network	3.6

Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

Of all firms nationally, 3.6% have an international corporate network; a large percentage of multinational companies are in this category. Of these, 2.5% need and have a national corporate network, which shows that they need to be connected to a nationwide network because they have offices in other parts of the country not necessarily in the capital. Lastly, 2.4% of firms nationwide have a Metropolitan Area Network (MAN) for coverage in the metropolitan area of the capital.

5. Firms with Internet connection

Internet use affords firms access to a wide range of information in any part of the world, as well as the use of various services, such as e-mail, which is fundamental in business communications with suppliers and customers, and lastly, the ability to carry out e-commerce.

We now consider the breakdown of firms with Internet connections. At the national level, 64.2% have an Internet connection, while 33.6% do not. From a sectoral standpoint, 63.9% of productive-sector companies have Internet connections, and 34.3% do not. In the services sector, 64.5% of firms have an Internet connection, while 33.1% do not (see table 10).

TABLE 10
ENTERPRISES WITH AN INTERNET CONNECTION
(In percentages)

	Total	Production	Services
With	64.2	63.9	64.5
Without	33.6	34.3	33.1
N/a	2.1	1.8	2.4
Total	**100**	**100**	**100**

Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

6. The Internet services that companies use

The importance of Internet use for firms lies in the benefits they can obtain, which translate into higher profits.

The basic services that companies frequently use on the Internet are: e-mail, websites, database queries, FTP services, and video-conferences (see table 11).

The data provided in table 11 depends on firms having an Internet connection.

Firms may use one or several of these services. The data were obtained from the replies provided by the surveyed enterprises. The service most frequently used by firms was e-mail: 60.9% of firms nationwide; 22.9% responded that website was another service used, while 15.6% used the Internet for database queries, 6.5% used the Internet for FTP services, and 0.8% of firms only used it for video conferences. Lastly, 1.2% of all firms surveyed stated that they only obtained maximum benefit from the Internet when they used all the services mentioned above (see table 11).

TABLE 11
INTERNET USE
(In percentages)

Internet Services	Total
E-Mail	60.9
Websites	22.9
Data base queries	15.6
File Transfer Protocol (FTP) services	6.5
Video conferences	0.8
All the above	1.2

Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

7. Uses that firms make of the Internet

The survey has listed several products or services that provide information on the uses companies make of the Internet when connected.

Hence, 22.6% of the companies use the Internet to publicize the corporate image, 45.2% of firms that have computers and are connected to the Internet carry out business over the web, 37.8% use the Internet for research and investigation, 11.5% carry out training through web-based courses, and 8% maximize the benefits that Internet provides them.

As trade is one of the most important activities in all firms, the figures above seem very low. Nonetheless, the percentage is likely to increase as firms incorporate Internet use and discovers that the Internet offers them a world of possibilities for increasing their profits.

8. Firms that engage in e-commerce activities

One of the primary functions of all firms is to carry out its business, for which the most diverse strategies can be executed using all legal and legitimate opportunities available. The Internet offers an additional opportunity for companies to carry out this function, the main reason and mission of all companies: to be able to carry out business in the best way possible, quickly and effectively, on the understanding that it must be safe and reliable.

The proportion of companies that use the Internet for e-commerce, at the national level, is shown below (tables 12 and 13, and figure 6).

TABLE 12
E-COMMERCE IN ENTERPRISES
(In percentages)

Engage in e-commerce?	Total
Yes	14.1
No	79.4
N/a	6.5
Total	**100**

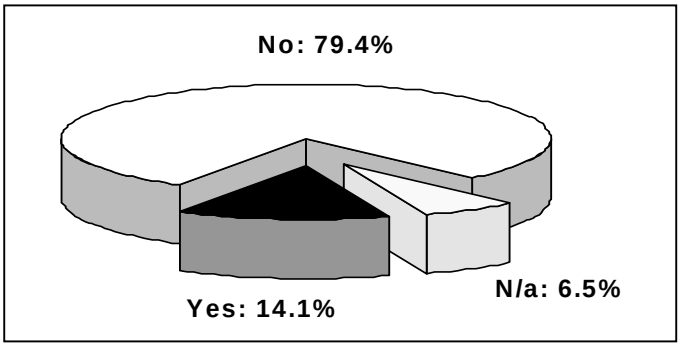
Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

TABLE 13
OTHER USES OF THE INTERNET
(In percentages)

	National
Enterprise image dissemination	22.6
Trade	45.2
Research	37.8
Training	11.5
All of them	8

Source: Instituto Nacional de Estadística e Informática (INEI), 2001

FIGURE 6
ENTERPRISES THAT DO E-COMMERCE AT NATIONAL LEVEL
(In percentages)



Source: Instituto Nacional de Estadística e Informática (INEI), 2001.

A quick situational analysis of firms would show that, regrettably, only 14.1% of companies undertake some type of e-commerce activity.

This small percentage of companies involved in e-commerce activities could suggest a number of factors that slow down or impede its use, such as: security, lack of an adequate legal framework to provide stability, ignorance in the use of e-commerce, among others.

9. Modes of e-commerce used by firms at the national level

Of the various e-commerce modalities used by firms, the most frequent is "Business to Business" (B2B). At the national level, this modality represents 74.5% of all business types. Second in importance is "Business to Consumer" (B2C) which accounts for 49%, and third, "Business to Government" (B2G) which represents 8.9% (see table 14).

TABLE 14
TYPE OF E-COMMERCE
(In percentages)

Of firms that engage in e-commerce	National
B2B	74.5
B2C	49.0
B2G	8.9

Source: Instituto Nacional de Estadística e Informática (INEI), Consejo Nacional de Ciencia y Tecnología (CONCYTEC), 2001.

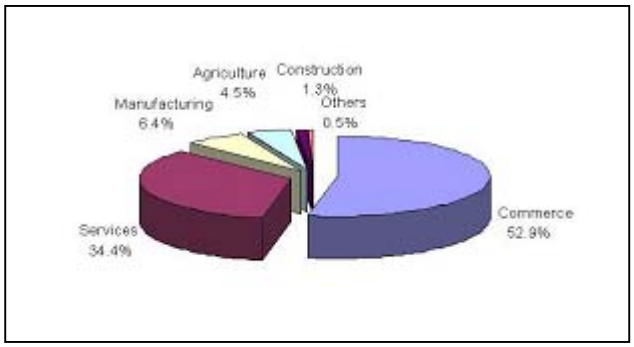
These figures reflect a situation in which the level of commercial transactions undertaken through e-commerce is very low, which reveals that we are in the initial stages of what will later be a major flow of commercial exchange.

At present we believe that all firms —irrespective of their size and net sales levels— should be in a position to undertake e-commerce transactions such as bank payments. Trade would thus be driven by expanding the use of technologies that benefit all users in society at large.

C. SMEs by economic sector

In general, the SME sector in Peru is not very knowledgeable of the national economy because they produce goods focused on the final consumer, competing with products made by large firms enjoying economies of scale. The textile cluster in Gamarra and the leather cluster in Trujillo are exceptions because of their expertise and market focus. Although SMEs are present in industry, they are more common in the services and commercial sectors, since these areas require less investment and in turn provide more flexibility. Bearing this in mind, and based on statistics from PROMPYME and others, the distribution of SMEs by activity is shown in figure 7:

FIGURE 7
DISTRIBUTION OF SMES BY ECONOMIC SECTOR
(In percentages)

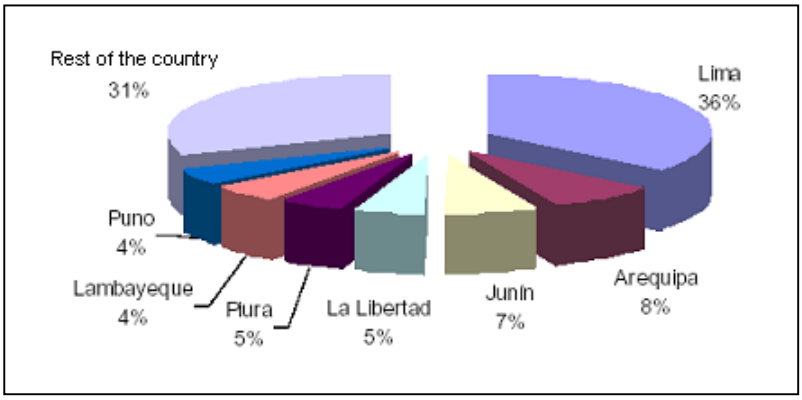


Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), 2003.

D. SMEs by region

The geographic distribution of SMEs shows that the Peruvian capital, Lima, accounts for nearly 36% of firms, with the remaining regions ranked as follows: Arequipa 7.8%, Junin 6.6%, La Libertad 5.0%, and Piura 4.6%, among others shown in figure 8:

FIGURE 8
GEOGRAPHIC DISTRIBUTION OF SMES IN PERU
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), 2003.

Considering the percentage of SMEs in each Peruvian region, they make up no less than 97.7% of the total with a national average of 98.6%, based on the National Superintendence of Tax Administration (Superintendencia Nacional de Administración Tributaria (SUNAT)) figures as reported by PROMPYME (see table 15).

TABLE 15
PERU: DISTRIBUTION OF SMES BY REGION
(In percentages)

Region	%	Region	%
Huancavelica	100	San Martín	99.4
Amazonas	99.7	Ancash	99.3
Tumbes	99.7	Arequipa	99.2
Apurimac	99.7	La Libertad	99.2
Pasco	99.6	Moquegua	99.2
Puno	99.6	Ica	99.1
Ayacucho	99.6	Tacna	98.9
Cajamarca	99.5	Ucayali	98.8
Lambayeque	99.5	Loreto	98.7
Junin	99.5	Madre de Dios	98.7
Cusco	99.5	Callao	97.8
Huanuco	99.5	Lima	97.7
Piura	99.4	**Total**	**98.6**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), 2003.

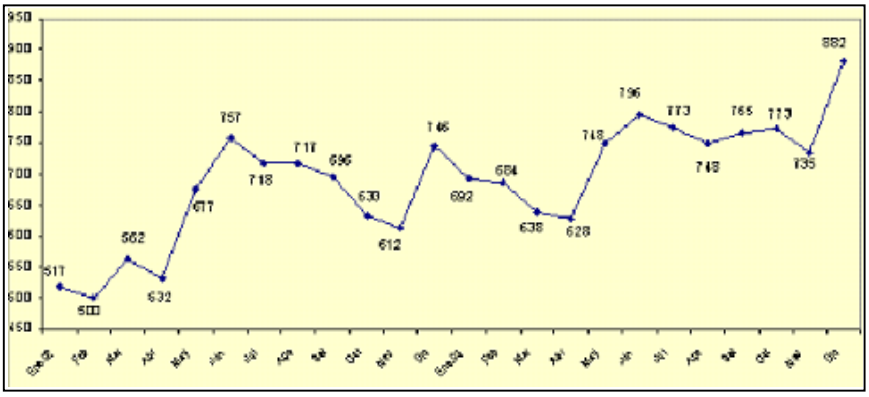
E. SMEs and exports

As mentioned above, the level of entrepreneurial knowledge in the SME sector is very poor, and, compounded by their practically non-existent participation in the industrial sector, there are few SMEs exporting goods and services. On the other hand, it is not common to find SMEs working closely with large exporting enterprises. The reasons for this are, basically, that the SMEs cannot achieve standard levels of quality, volume, and committed delivery dates. According to figures published by SUNAT and PROMPYME, the SME sector contributed 3.2% of Peruvian exports in 2003.

1. Global trend of exports in 2003

Based on PROMPEX data the accumulated exports for 2003 registered a total of US$ 8,863.27 million — US$ 1,197.98 million more than in 2002, representing an increase of 15.6%. Exports of traditional products contributed to this result with a rise of US$ 847.74 million, while non-traditional exports increased by US$ 350.23 million during the period under analysis (see figure 9).

FIGURE 9
PERUVIAN EXPORTS TREND 2002-2003



Source: Comisión para la Promoción de Exportaciones (PROMPEX), Evolución de las Exportaciones año 2003, Lima, 2004c, March.

2. Trend of Peruvian exports by sector

a) Mining products

At the national level, mining products overall registered a positive trend, growing to US$ 4,532.46 million of exports, or an increase of 19%. This important sector contributed 51.1% of Peru's total exports in 2003.

b) Fish products

The fishery sector made an important contribution of 11.6% to the country's total exports. Overall, aquaculture products displayed a negative trend, with a slight drop of US$ 35.98 million, mainly due to a reduction in fishmeal exports.

c) Petroleum and petroleum products

Exports of petroleum and petroleum products registered a positive performance, attaining a value of US$ 665.44 million in 2003, representing an increase of 39% with respect to the previous year.

The leading final markets for crude oil were Chile and the United States. While foreign sales of petroleum products grew by 28.5% in 2003 with respect to the previous year, the main markets were the United States and Panama. The average price of petroleum increased by 22.5%, rising from US$ 20.74 per barrel in 2002 to US$ 25.4 in 2003.

d) Agricultural products

This sector as a whole displays a positive trend, with an increase of US$ 80.17 million in 2003, compared to 2002. The sector contributed 9.6% of Peru's total exports.

In the case of coffee —the main export item in this sector— exports fell by 3.7% in 2003. The leading final markets were Germany, the United States, and the Netherlands. The international price of this product was favourable, rising by 6.2% from US$ 1,329.83 per metric tonne in 2002 to US$ 1,412.43 in 2003.

Agricultural exports grew by 13.2% in the analysis period. The main items include: fresh or refrigerated asparagus, canned asparagus, mangos, grapes, paprika, red pepper, evaporated milk, frozen asparagus, avocado pears, cocoa butter, animal feed, biscuits, sweets, marigold flour and onions.

e) Textile and garments sector

Sales of textile products and garments made a significant contribution of 9.6% to Peru's total exports. The FOB value of textiles and garment exports amounted to US$ 822.83 million in 2003. The main products were: T-shirts, cotton knit shirts, other cotton garments, combed or woven fine wool, acrylic cables, trousers, garments and accessories for babies, sweaters and cotton pullovers and cardigans. Sales of cotton T-shirts for men or women trended positively, growing by US$ 23.7 million during the period under analysis. The main end-market was the United States. Exports of cotton knit shirts for men, in one colour, grew by US$ 14.2 million in 2003 with respect to the previous year, the United States being the main market. Sales of other T-shirts made of cotton, for men and women, increased by 11.4%, with the United States again as the main market. The FOB value of other blouses for women grew dramatically by 35.6%. The

main destination market was the United States. Similarly, sales of cotton T-shirts for boys increased by 56.8%. Once again, the main destination market was the Untied States.

f) Chemical sector

This sector contributed 3.6% of Peru's total exports in 2003 and experienced growth of US$ 59.39 million during the period. The main items in this sector were: beauty products, other sweets and jars; other laminated sheets, new tires for automobiles, xanthophylls, sulphuric acid, colorants, boric acid, ethyl alcohol, colorant sprays, zinc oxide and cochineal.

g) Metallurgical steel sector

Exports in this sector registered an increase in a FOB value of US$ 30.49 million in 2003 relative to the previous year, and this important sector accounted for 2.2% of Peru's total exports. The main items were copper wire, unalloyed zinc, laminated rods, zinc alloys, iron bars, copper bars and profiles, flat zinc sheets, other veneers, hexagonal zinc discs, among others.

h) Metalworking sector

Foreign sales in the metalworking sector declined by US$ 12.4 million in 2003, with respect to the previous year. Re-exports continue to recorded in this sector, thereby nullifying the effect of the real export figures. The main export items in this sector were household refrigerators, parts for pumps, machine parts and appliances, other electrical conductors, balls and articles for mills, other cast products, among others.

i) Non-metallic mining sector

Exports in this sector grew by 6.6% in 2003 with respect to 2002. The leading items were marble, cement, other ceramic tiles and slabs, unpolished cement, other statuettes, safety glass for automobiles, sinks, washbasins and dissolved salts, among others.

j) Miscellaneous sector (including jewelry)

Foreign sales in this sector displayed a positive trend, with an increase of 21.5% in 2003 with respect to the previous year. The main items were jewellery, semi-precious jewellery, other markers and felt pens, ballpoint pens, parts and accessories of survey instruments, other knitted hats, articles made of 9.25 silver, footballs and balls, paintings and drawings, and original statues.

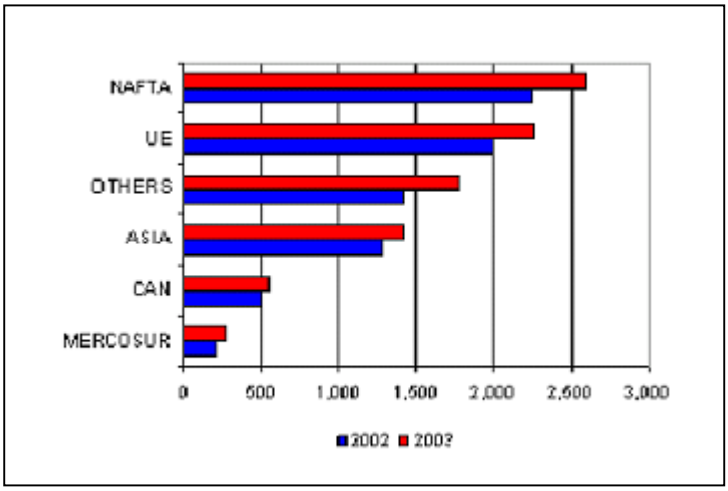
k) Fur and leather sector

Exports of hides and skins increased by 18.1% in 2003 with respect to the previous year. The main items were wet depilated bovine hides and skins, alpaca fur articles, other wet depilated tanned hides and skins, wet depilated caprine skins, wet tanned hides, hides of other animals prepared after tanning or drying and handbags.

3. Analysis of end markets

In 2003, 54.8% of Peru's exports went to NAFTA and the European Community, 16% to the leading Asian countries, 6.3% to the Andean Community, 2.9% to MERCOSUR and 20% to the rest of the world (see figure 10).

FIGURE 10
MAIN MARKETS FOR PERUVIAN EXPORTS, 2003

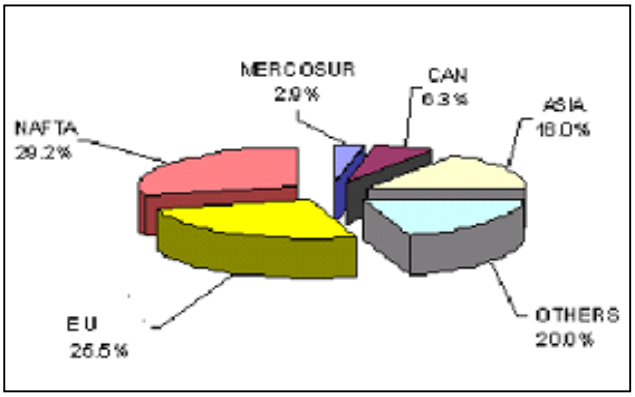


Source: Comisión para la Promoción de Exportaciones (PROMPEX), Evolución de las Exportaciones año 2003, Lima, 2004c, March.

a) NAFTA

Sales to NAFTA member countries amounted to US$ 2,592.14 million in 2003, representing an increase of 15.2% with respect to last year (see figure 11).

FIGURE 11
PERUVIAN EXPORTS EVOLUTION, DEC-2003



Source: Comisión para la Promoción de Exportaciones (PROMPEX), Evolución de las Exportaciones año 2003, Lima, 2004c, March.

The United States is the main market for Peru's exports, absorbing 26.5% of the total. The trend of sales to this country was positive, with 18.6% growth in 2003 with respect to the previous year. Exports to the Canadian and Mexican markets account for just 2.7% (US$ 243.9 million) of Peru's total exports. Exports to both countries performed negatively: sales to Mexico slumped by 16.7%, while those to Canada fell by 3.1%.

b) Main European countries

Exports to the European Community totalled US$ 2,263 million, thereby making this the second most important trading bloc, in terms of the amounts involved, and accounting for 25.5% of total sales during the analysis period. The sales performance of this group of countries grew by 13%.

Destination countries, in order of importance, were: the United Kingdom (12.3%), Spain (3.4%), Germany (2.9%), Italy (2.1%), The Netherlands (1.8%), Belgium (1.1%), France (1%), Finland (0.3%) and the other countries of the European Community (0.6%). The trend of exports to these countries was positive with the exception of Belgium, Finland and the rest of the countries of the European Community, where the performance was negative. Switzerland absorbed 7.6% of Peru's total exports, with a 19.3% increase recorded during the period under analysis: the main export product was un-worked gold.

c) Leading Asian countries

Exports to the main Asian countries amounted to US$ 1,421.64 million and accounted for 16% of Peru's total sales abroad, growing by 10.9% during the period under analysis. In order of contribution: China with 7.6% is the leading destination market, followed by Japan (4.4%), Republic of Korea (2%), Taiwan Province of China (1.7%), and Hong Kong (China) (0.3%).

d) Andean Community

Exports to the countries of the Andean Community totalled US$ 558.26 million, representing 6.3% of Peru's total exports. The largest share was absorbed by Colombia (2.1%), followed by Ecuador (1.8%), and Venezuela and Bolivia with (1.2%). Exports to countries of the Andean Community grew positively except in the case of Venezuela, where the trend was negative

e) MERCOSUR

The FOB value of exports to the Southern Common Market (MERCOSUR) totalled US$ 259.53 but only accounted for 2.9% of Peru's total exports in 2003.

The country absorbing the largest share was Brazil with 2.6%, while the other member countries (Argentina, Paraguay and Uruguay) barely account for 0.3%. It should be noted that the trend of sales to these countries was positive except in the case of Paraguay where it was negative. Exports to Chile trended upwards (62.4%) during the period of analysis. This market individually accounts for 4.7% of Peru's total exports.

f) Other countries

Sales to other countries not considered in the preceding analysis accounted for 7.7% of Peru's total exports in 2003. The trend of the FOB value for all these countries was positive, with 14% growth during the analysis period.

III. Case studies: industrial clusters

A. Gamarra textile cluster

As stated above, exports of the textile and apparel sector continued to post positive growth rates (21.55%) in January-December 2003, accumulating a value of US$ 822.8 million. The garments segment remains the leading sub-sector, accounting for 79.47% of the sector's total exports, or US$ 653.9 million. This item remains on an upward trend, with foreign sales growing by 23.01%. The textile segment on its own also displayed positive growth, although lower than in the apparel segment (16.23%). This sub-sector accounted for 20.53% of the sector's total exports during the period under study (see table 16 and figure 12).

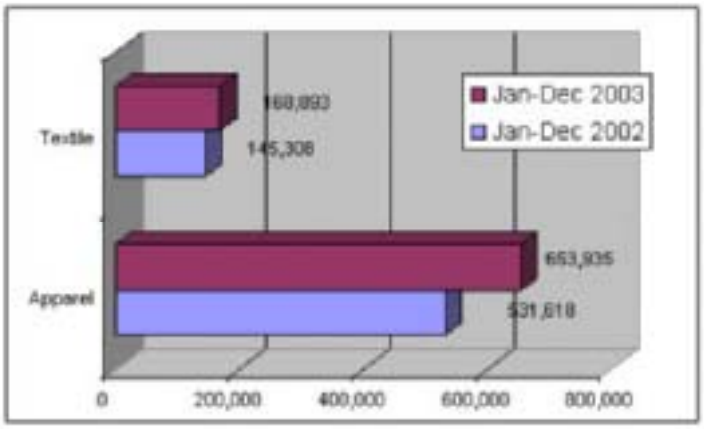
TABLE 16
TEXTILE MANUFACTURING INDUSTRY

Item	Jan-Dec 2002	Jan-Dec 2003	Variation	Share
Apparel	531,618.22	653,934.55	23.01	79.47
Textile	145,307.57	168,892.63	16.23	20.53
Total	**676,925.79**	**822,827.18**	**21.55**	**100**

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

With a 78.61% share, garments remained the leading export item in the textile and apparel sector in January-December 2003, and, apart from fabrics, garments also posted positive growth rates in late 2003 (see table 17).

FIGURE 12
TEXTILE MANUFACTURING INDUSTRY



Source: Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Textil año 2003, Lima, Lima, 2004b, March.

TABLE 17
TEXTILE SUB-SECTORS

Item	Jan-Dec 2002	Jan-Dec 2003	Variation	Share
Clothing	525,823.50	646,824.78	23.01	78.61
Yarns	47,143.02	57,335.25	21.62	6.97
Textiles	42,366.74	41,816.71	-1.30	5.08
Fibers	35,681.52	40,992.66	14.88	4.98
Other Textile	19,594.25	27,742.04	41.58	3.37
Other Garments	4,976.66	6,163.16	23.84	0.75
Sewing Thread	522.04	1,005.97	92.70	0.12
Other Apparel	818.06	946.61	15.71	0.12
Total General	676,925.79	822,827.18	21.55	100

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

Once again, knitted T-shirts and cotton undershirts are the leading export products in the textile and apparel sector, accumulating 28.89% of total sales of the sector and continuing the positive trend (21.31%). Secondly, cotton-made knitted undershirts for men or children, posted strong growth of 42.20%, representing 17.20% of total sector exports in January-December 2003. Cotton-made knitted shirts, blouses, and shirtwaist blouses for women or children, remain the third main export product, with a share of 6.83% and accumulated growth of 34.50%.

As of late 2003, the United States remained Peru's leading trade partner in the textile and apparel sector, absorbing 62.71% of its total exports. Consolidating the growth trend, initiated with the promulgation of ATPDEA, sales to this market increased by 27.83%, to reach US$ 516 million. Venezuela is the second most important destination market for our textile products,

although it only represents 5.62% of the total, while Chile is the third with a 3.60% share. It is important to note growth of 7.66%, 25.37% and 33.61% of sales to Spain, Italy and Colombia, respectively, during the period under analysis (see table 18).

TABLE 18
TEXTILE EXPORTS BY COUNTRY

Country	Jan-Dec 2002	Jan-Dec 2003	Variation	Share
United States	403,697.83	516,031.89	27.83	62.71
Venezuela	35,655.76	46,225.71	29.64	5.62
Chile	25,834.00	29,620.88	14.66	3.60
Spain	19,625.13	21,127.48	7.66	2.57
Italy	16,471.62	20,650.16	25.37	2.51
Colombia	13,444.04	17,963.23	33.61	2.18
Ecuador	20,901.72	17,615.69	-15.72	2.14
Japan	13,720.87	14,588.87	6.33	1.77
United Kingdom	17,118.52	14.375.26	-16.03	1.75
Germany	13,223.58	13,258.52	0.26	1.61

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

TABLE 19
LEADING EXPORTERS

Company	Jan-Dec 2002	Jan-Dec 2003	Variation	Share
CONFECCIONES TEXTIMAX S A	48,653.93	66,547.24	36.78	8.09
TOPY TOP S A	36,691.13	52,152.67	42.14	6.34
DISENO Y COLOR S.A	39,454.16	47,229.42	19.71	5.74
INDUSTRIAS NETTALCO S.A.	34,355.00	40,471.37	17.80	4.92
TEXTIL SAN CRISTOBAL S.A.	38,885.06	38,825.61	-0.15	4.72
SUDAMERICANA DE FIBRAS S.A.	24,973.60	32,519.34	30.21	3.95
TEXTIL DEL VALLE S.A.	26,995.75	28,266.84	4.71	3.44
CIA. IND. TEXTIL CREDISA-TRUTEX S.A.A.	21,209.87	25,945.76	22.33	3.15
COTTON KNIT S.A.C.	19,542.39	25,679.62	31.40	3.12
MICHELL Y CIA S.A.	21,057.79	25,104.49	19.22	3.05

Source: Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Textil año 2003, Lima, Lima, 2004b, March.

The data show that the United States is the most important destination market for each of the main products, followed by Venezuela, Spain, Chile, and Italy. For example, cotton knitted T-shirts for men or women sent to the United States represent 87.8% of total exports of this product,

and concentrations are similar for cotton knitted shirts for men or children, other cotton T-shirts for men and women, shirts for women or children, and cotton t-shirts for children, where sales are absorbed for acquisitions by our trade partner.

Confecciones Textimax was the leading Peruvian export enterprise at the end of 2003, with sales growing by 36.78% to US$ 66.5 million. Topy Top is ranked second, with substantial growth of 42.14%, to post foreign sales of US$ 52.2 million during the period under analysis. Nearly all the main exporting firms, except for Textil San Cristóbal, have registered positive export growth rates in 2003 (see table 19).

1. The SME apparel manufacturing sub-sector

In this sub-sector, just over 24,100 or roughly 91% of firms are involved in garment production, according to information provided by SUNAT. In terms of size, 96.7% are micro-enterprises. In this sub-sector there are more micro-enterprises than in any other economic activity, owing to the small investment required and little knowledge needed to start up production of goods and services. This also facilitates access for the unemployed with few or no resources to engage in productive self-employment. It is also an industry that is highly centralized in Lima (75% of establishments), which generates competitive advantages in supply and transaction costs.

In conclusion, the enterprise structure of the textile sector, and in particular the apparel sub-sector is pyramidal, i.e. it concentrates a large number of small firms and micro-enterprises at the bottom, relative to medium and large enterprises at the top. Garment production is the most concentrated segment of apparel manufacturing because: (i) the demand for this product in the local and international markets is high, and (ii) the availability of raw materials such as cotton and fine wool is not a problem, and it offers an easy access for generating micro-enterprise and employment. Lastly, it is important to note that roughly 93% of sales in this sub-sector are generated in the city of Lima.

2. The Gamarra Business District

The Gamarra business district dates back to around 1950 when businesses mostly belonging to families of Arabic origin were established to sell textiles in the area around Gamarra Avenue. In 1955, with the spread of street traders, the local government authorized street commerce to settle in Gamarra and in parts of Aviation Avenue. This commerce was devoted to a variety of items, particularly footwear, garments, and office supplies. When Aviation Avenue was beginning to gain importance as a commercial hub, Gamarra Avenue was still a residential zone. The 1970s saw a boom in Gamarra as some of its merchants that had started as street traders in Aviation Avenue after achieving their first capital accumulation, sought to settle and set up stores on Gamarra Avenue, mainly producing and selling textile products.

a) Market and Product

The manufacturing of apparel and the provision of related services has continued to improve over time, thanks to the strong competition in the area, cooperation among companies of different sizes, and linkages with the external market. However, market conditions demand continuing efforts to improve quality levels, and raise standards in production and services.

b) Price

Gamarra is one of the business districts with best prices and special offers in the national market. The massive attraction of this market stems from the low prices of its products and services, so competition in this business district exerts downward pressure on costs.

c) Promotion

The most frequently used promotional mechanisms include participation in fairs, the use of trademarks, producer associations, promotions carried out by customers themselves, the use of freelancers known as "*jaladores*" who responsible for attracting clients from the street, the use of street advertising, and promotion through messages broadcast on loud speakers.

d) Distribution

The establishments themselves serve as sales points. Nonetheless, there is a variety of networks of merchant-wholesalers and retailers who work formally and informally, either on the street or from fixed sales points, distributing textile products in the area.

e) Customers

Most of the products and services on sale in Gamarra target the domestic market: customers from the various districts of Lima drawn mainly from the C and D socioeconomic groups, merchants from regions outside Lima, street traders, retailers, production and services companies, among others.

Roughly 60% of the products sold in Gamarra are targeted on the final consumer. Only around 27% are sold to resellers as the main customers —companies engaging solely in manufacturing; 10.44% are sold to other manufacturing companies as main customers; 1.71% to service enterprises, 0.95% to subcontractors, and 0.57% to the Peruvian government.

f) Potential clients

Manufacturers in this business district see the external market as a potential customer in achieving the diversification they require. They regard the American market as the one with largest demand because of the tariff benefits obtained from the Andean Trade Promotion and Drug Eradication Act (ATPDEA). These export activities are viable because, more often than not, the main manufacturing firms are considering the possibility of forming strategic alliances with small business and micro-enterprise manufacturers to satisfy their growing external demand, basically from the USA. The formation of horizontal and vertical clusters (outsourcing) would allow them to penetrate new local and international markets.

g) Suppliers

A variety of suppliers exist for the manufacturing, merchant, and service SMEs. These include suppliers of raw materials for manufacturers, suppliers of services and even work in progress: fabrics, colouring services, sewing, design, and finishing.

h) Competitors

The main competitors in areas round Lima focus on the apparel business. In addition, the galleries and boutiques that are located in different parts of the capital (the districts of Jesús María, Magdalena, Polvos Azules, and Polvos Rosados) represent strong competition, because they offer a wide range of products at low prices in a constantly changing market. The large department store retailers, such as Ripley and Saga Falabella, provide strong competition at certain times of the year as they satisfy demand with textiles imported from China at moderate prices.

3. Swot analysis

a) Opportunities

- Growing demand in the American market boosted by the tariff benefits of the ATPDEA, and assisted by a recovery in domestic consumption.
- Industry highly centralized in Lima, which offers advantages in supply and transaction costs.
- Product demand from neighbouring countries.

b) Threats

- Imports from China at prices below local market prices.
- Imports of used clothing and an increase in smuggling.
- Possible tariff increase on imported cotton, which will affect production costs, undermining competitiveness in this sector.
- Impact of retail department stores on the market (Ripley and Saga Falabella), due to the availability of credit.

c) Strengths

- Small firms possess a dynamic structure. They recognize the need for partnership or temporary grouping as a mechanism to satisfy current demand and access new markets.
- Gamarra is one of the business districts with the best prices and largest supply in the national market.
- A variety of suppliers ranging from raw materials for factories to goods in process.
- Flexibility in relation to the product supplied: variety of products, order volume, products in line with the customers' demand, among others.
- The Gamarra business district has consolidated the market thanks to the loyalty of its customers (captive customers).

d) Weaknesses

- Lack of export experience and skill to negotiate in international markets.
- Low quality products.
- Few resources available for training.
- Informality in the creation of the companies, and in carrying out operations.
- Limited access to financing alternatives as a result of being unable to meet demands and requirements.

Around 69% of establishments engaging in the production and sale of products operate the entire year through direct sales to the public and distributors, while 26% pursue their activities according to the seasons; only 5% of the companies are governed by supply and demand (see table 20).

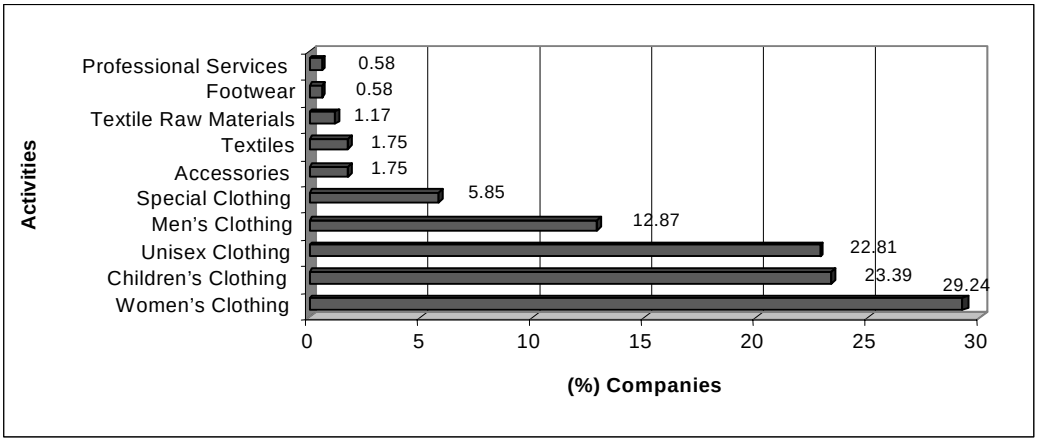
In the manufacturing and trade sector, roughly 29% of SMEs focus their activities on the production and marketing of ladies' clothing (see figure 13), such as blouses, skirts, and T-shirts (see table 21). Around 23% of firms manufacture and sell clothing for infants (see table 22). In addition, 22.81% of the firms are engaged in the production and sale of unisex clothes, mainly T-shirts, plungers, coats, and shorts (see table 23).

TABLE 20
ACTIVITY FREQUENCY

	Number of companies	Percentage
Yearly	278	68.98
Seasonally	104	25.81
According to demand	21	5.21
Total	**403**	**100**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

FIGURE 13
SPECIFIC ACTIVITIES IN THE COMMERCIAL AND MANUFACTURING SECTORS



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

TABLE 21
MANUFACTURE AND SALE OF WOMEN'S CLOTHING

Women's clothing	Manufacturing & sales	Percentage	Accumulated percentage
Blouses	23	19.83	19.83
Skirts	20	17.24	37.07
T-Shirts	14	12.07	49.14
Lycra pants	13	11.21	60.34
Underwear	9	7.76	68.10
Formal ware	8	6.90	75.00
Others	29	25.00	100
Total	**116**	**100**	

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

TABLE 22
MANUFACTURING AND SALE OF CHILDREN'S CLOTHING

Children's clothing	Manufacturing & sales	Percentage	Cumulative percentage
Children's outerwear	33	70.21	70.21
Children's underwear	7	14.89	85.11
Others	7	14.89	100
Total	**47**	**100**	

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

TABLE 23
MANUFACTURING AND SALE OF UNISEX CLOTHING

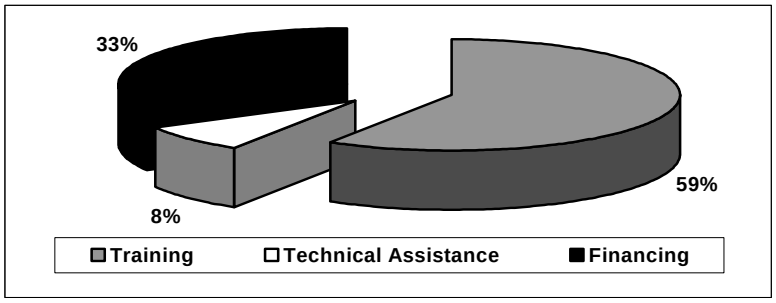
Unisex clothing	Manufacturing & sales	Percentage	Cumulative percentage
T-Shirts	14	13.33	13.33
Sweat-suits	13	12.38	25.71
Jackets	12	11.43	37.14
Shorts	12	11.43	48.57
Jeans	11	10.48	59.05
Sweatshirts	10	9.52	68.57
Sportswear	7	6.67	75.24
Vests	5	4.76	80.00
Others	21	20.00	100
Total	**105**	**100**	

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

e) Support from institutions

Public and private entities such as central government, municipalities, banks, private institutions and NGOs have support programmes for SMEs (free of charge, subsidized, or financed) in the areas of training, technical assistance, and financing, with the aim of contributing to development of this sector. Of firms in the Gamarra area, 10.42% receive help from such institutions; 58.82% obtain support in training topics and, to a lesser extent, financial support and technical assistance (see figure 14).

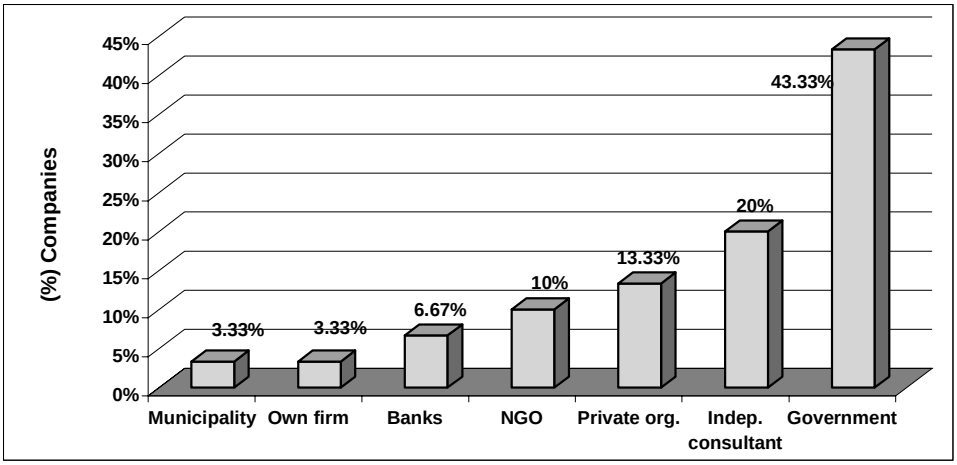
FIGURE 14
AREAS OF BUSINESS SUPPORT
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

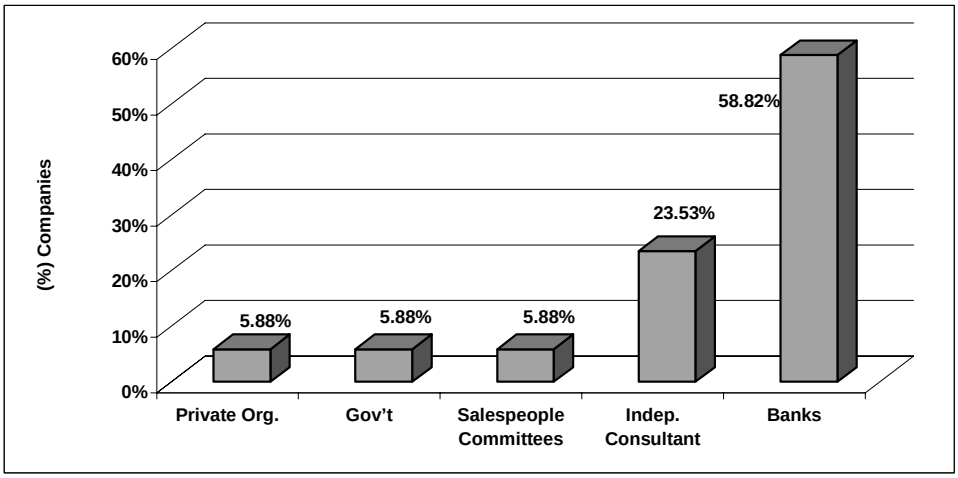
In the case of training courses, roughly 44% receive help from the Government through entities like PROMPYME, Prompex, Cofide, the Ministry of Labour, and others; followed by support from independent consultants (20%), and to a lesser extent, support from private institutions (see figure 15).

FIGURE 15
INSTITUTIONS THAT PROVIDE SUPPORT THROUGH TRAINING
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

FIGURE 16
INSTITUTIONS THAT PROVIDE FINANCIAL SUPPORT
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

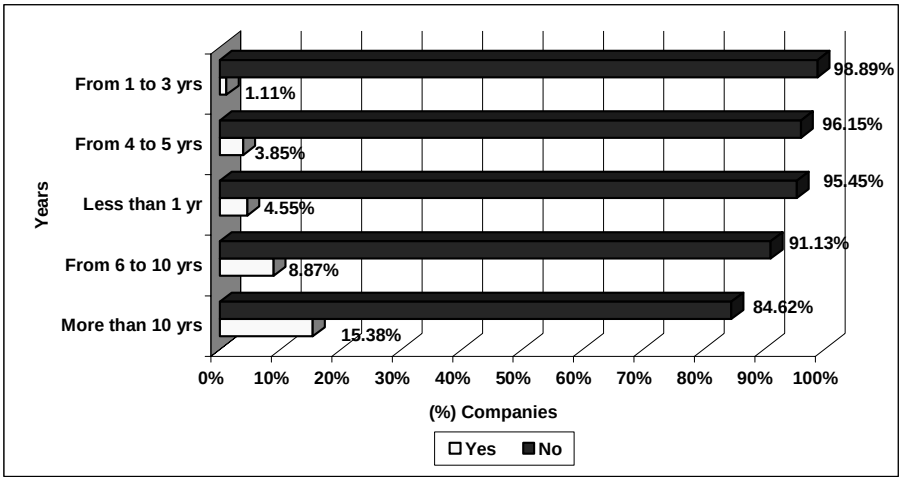
With regard to technical assistance, here the firms obtain support from independent consultants, and to a lesser extent from private institutions and the Government. This technical assistance aims to improve the quality of the work environment, to organize productive and administrative processes, to reduce costs and increase efficiency, to improve quality control in

products and processes, and to strengthen the ability to access new markets —all of which combine to form the factors that impact on competitiveness, and on the current and future enterprise profitability. In the case of financial support, banks are the financial entities most readily sought for this type of service (nearly 59% of firms), followed by independent advisers (see figure 16).

4. Export activities in the Gamarra cluster

Some entrepreneurs view export activity as an alternative for selling off surplus products with the sole aim of recovering invested capital —unlike other entrepreneurs who have higher aspirations with regard to the external market. These entrepreneurs aim to participate in an export cluster like an organized system, where product, quality, and customer satisfaction are key factors for success in an open, competitive, and global market. As firms consolidate their position in the local market, they acquire greater experience in placing their products on external markets. Moreover, firms that have been operating for over 10 years have the most experience in this field, since these SMEs seek business growth by entering new markets (see figure 17). Nonetheless, in many cases, SMEs include as export activity the sale of local products to entrepreneurs from other countries or cross-border sales.

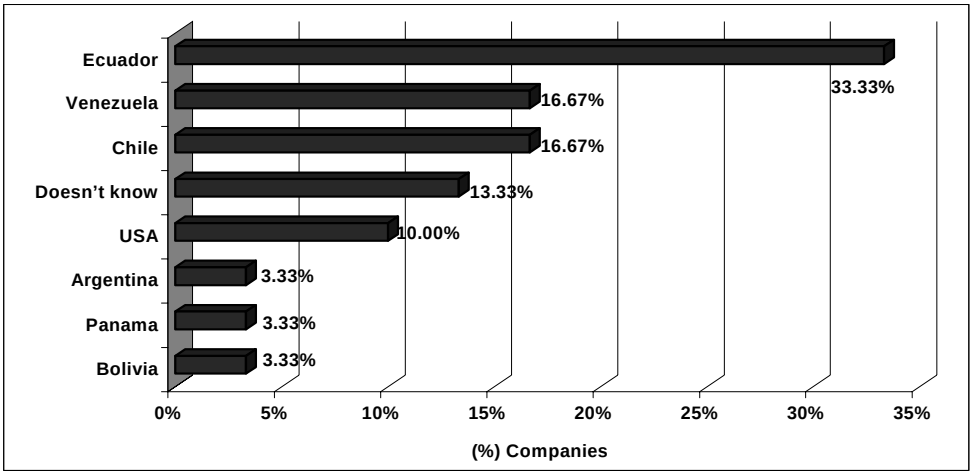
FIGURE 17
EXPORTING EXPERIENCE BY AGE OF BUSINESS IN THE AREA
(Percentage calculated relative to the number of cases in each age range)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

At the present time, 95% of firms do not engage in export activities because they do not have the necessary resources to expand productive capacity (subcontracting of services, for example), or because of ignorance of the opportunities offered by the external market — caused by a lack of timely information, among other reasons. A significant percentage of companies that have been able to place their products on the external market have done so in neighbouring countries such as Ecuador and Chile (around 33% and 17% respectively), and in Venezuela (17%). To a lesser extent, they have been able to sell their products in the United States, Panama, Argentina, and Bolivia (see figure 18).

FIGURE 18
DESTINATION COUNTRY OF EXPORTS
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

5. Profile of an SME exporter in the Gamarra cluster

a) Labour Force

Roughly 91% of SMEs that engage in export activities employ an average of two workers, with smaller percentages of companies employing an average of five (nearly 5%), or more than nine workers (around 5%). This small number of employees explains the fact that these are small firms and micro-enterprises, which seldom use an intermediary trader company to place their merchandise on the external market (see table 24). Given the sporadic nature of their export activities, temporary staff has to be hired as and when convenient.

TABLE 24
NUMBER OF WORKERS EMPLOYED BY EXPORTING FIRMS

Number of workers	Exports	
	Yes	No
From 1 to 3	90.91	80.05
From 4 to 6	4.55	16.01
From 7 to 9	4.55	1.05
More than 9	0	2.89
Total	**100**	**100**
Number of companies	**22**	**381**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

b) Main Customers

Nearly 55% of export firms have the final consumer as their main customer. A smaller percentage of these businesses sell to intermediary trader companies and manufacturers who are responsible for fulfilling the order (roughly 28% and 14% respectively). Subcontractors work as intermediaries in the export chain, playing the role of SME customers. Of these companies, 3.45% send their final products mainly to the subcontractors (see table 25). Companies that undertake export activities look for diversification among their customers, i.e. they look for markets that have economic and seasonal cycles that differ from those prevailing in the local market.

TABLE 25
MOST IMPORTANT CUSTOMERS OF EXPORTING FIRMS

Exports activities	Exports	
	Yes	No
Final consumers	55.17	60.04
Marketing companies	27.59	26.51
Manufacturing companies	13.79	10.24
Sub-contractors	3.45	0.80
Service providers	0	1.81
Peruvian Government	0	0.60
Total	**100**	**100**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

c) Support from institutions

Roughly 18% of exporting firms receive support from institutions on training, technical assistance, and financing. In contrast, only 10% of the non-exporting firms receive such support (see table 26). Firms, which undertake export activities, clearly require more advice on topics relating to external trade, accounting, sales, and marketing than those targeting the local market, given the complexity of international markets in terms of product quality, consumer behaviour, tariffs, taxes, and other matters. Nonetheless, this requirement differs from the reality of the exporter companies in Gamarra because in most cases exporting is sporadic, with no preparation prior to the current export shipment.

TABLE 26
INSTITUTIONAL SUPPORT TO EXPORTING FIRMS

Exports activities	Exports	
	Yes	No
Yes	18.18	81.82
No	9.97	90.03
Total	10.42	89.58
Number of companies	42	361
Total companies	**403**	

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

Nearly 36% of exporting firms have financing, unlike firms that do not export, which represent a larger volume (roughly 45%). This occurs because the financing of export activities represents a larger risk for financial entities, and a demand for additional requirements, which the SMEs cannot cover.

d) Subcontracting

Subcontracting is a mechanism that allows companies to cover different areas of production and/or commercial processes to increase levels of productivity. Most medium-sized companies subcontract to small firms to make up for a lack of machinery or installed capacity to cover their export volumes. Thus, the mechanism of subcontracting for export shows that 94% of the business located in this area has not been subcontracted for export purposes. On the other hand, the companies that have been subcontracted have been subcontracted on average 5 times a year (39%), while around 30% have been subcontracted on average of 2 times a year (see table 27).

TABLE 27
SUB-CONTRACTING FREQUENCY OF EXPORT ACTIVITIES

	Number of firms	Percentage
From 1 to 3 times	7	30.43
From 4 to 6 times	9	39.13
From 7 to 12 times	1	4.35
More than 12 times	4	17.39
Does not know	2	8.70
Total	**23**	**100**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

Of companies that are subcontracted for export operations, nearly 48% belong to the manufacturing and trade sector; around 39% are engaged in the marketing of products, and 13% are only in the manufacturing sector (see table 28). The large percentage of manufacturing and trade companies subcontracted for export explains why the big companies look for an integrated effort between production and marketing within the standards of the international market.

TABLE 28
FIRMS SUBCONTRACTED FOR EXPORT PURPOSES, BY SECTOR

Sector	Sub-contracting		Total
	Yes	No	
Manufacturing	13.04	3.17	15
Marketing	39.13	62.53	246
Manufacturing and sales	47.83	29.55	123
Services	0	4.75	18
Total	**100**	**100**	**402**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

e) Financing

The need for financing depends on several factors, including the size of the firm (in terms of sales volume and asset value), its inventory turnover, the main activity of the firm (manufacturing or marketing or both, and services), and its relationship to other companies (subcontractors, exports, services).

According to a recent study, 56% of SMEs do not obtain credit in the formal or informal financial system — in many cases because they fail to meet the basic requirements requested by the financial entities: they do not have the required collateral, or because of the lengthy procedures they have to endure to obtain credit of any sort. The most important source of SME financing (roughly 57%) comes from the banks, followed by their own savings or personal credit (nearly 34%). In contrast, a smaller portion represents credit supplied by informal money lenders (3%) whose rates for loans on short-term working capital —loans that can be for a term of days or weeks— easily surpass 8 to 10 times the ordinary rates in the financial system. We found other financing alternatives in various financial institutions (around 2%), suppliers (2%), Edpymes (Small Credit Institutions) (nearly 1%), and NGOs (approximately 1%). One of the reasons why the latter are not commonly used relates to limitations on the amounts of loans offered (see table 29).

TABLE 29
FINANCING SOURCES

	Number of firms	Percentage
Banks	101	57.06
Savings/family and friends	61	34.46
Other informal types	5	2.82
Financial institutions	4	2.26
Manufacturers - suppliers	4	2.26
Small & medium-sized enterprises	1	0.56
NGO - ODECI	1	0.56
Total	**177**	**100**

Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

6. ICT usage by SMEs including the Gamarra cluster

A total of 404 surveys were carried out by PROMPYME in the conglomerates of Gamarra, Villa El Salvador, Jirón de la Unión, Mesa Redonda and the Central Market (roughly 80 cases in each area). These were applied to business owners (58%), or business operators (42%). In the latter case, the eligibility condition was a minimum of three years' experience in running a business.

Dispersion in the sample was calculated in terms of gender (73% men and 27% women), the interviewee's age, (10% from 18 to 24 years of age, 43% from 25 to 39, and 43% 40 and up), as well as the age of the business (11% up to 2 years, 32% from 2 to 5 years, and 56% more than 5 years).

Most of interviewees did not belong to any managerial union (86%). Those who were unionized accounted for 12%, the managers of Villa El Salvador (37%) —and likewise in furniture and carpentry (46%)— the manager's subordinates (15%) and those 40 years old and over (15%).

Regarding goods for manufacture and sales, the two main groupings are clothing and textile manufacturers (29%), while furniture, carpentry, and machine working make up 11%. Of all textile businesses, 59% are located in Gamarra, while in the furniture and carpentry businesses, 100% are located in Villa El Salvador. The conglomerates of Mesa Redonda, Central Market, and Jirón de la Unión display greater dispersion of business types. Mesa Redonda specializes in the sale of toys and party articles (14% and 9%, respectively).

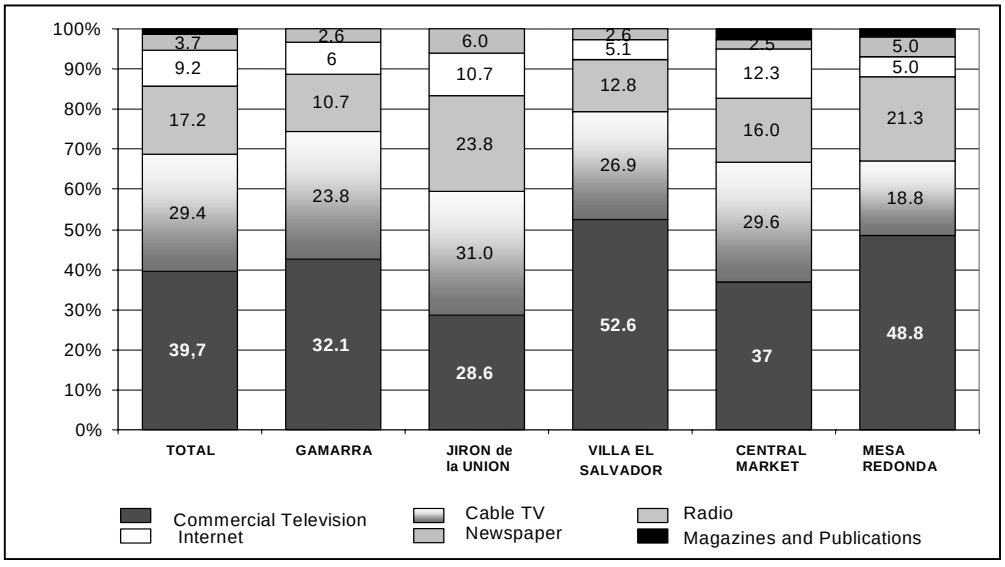
The aim of this investigation was to evaluate how the SME sector uses "information". A survey among owners or business operators or both, and among men and women aged between 18 and 60 was carried out for this purpose in the business districts of Gamarra, the Industrial Park of Villa El Salvador, Jiron de la Union, Mesa Redonda and the Central Market of Lima.

- Commercial television, newspaper, and radio are the most widespread and intensively used media (40%, 29% and 17%, respectively), while cable TV, Internet, and magazines and publications obtained non-significant user rates (9%, 4% and 1%, in each case) (see figures 19 and 20).

Overall, consumption habits in terms of information use among the different conglomerates considered in the survey are quite similar. Nonetheless, certain variances were identified: Villa El Salvador and Mesa Redonda have a greater orientation towards commercial television, Gamarra towards radio, and Jirón de la Unión and Mesa Redonda towards newspapers. The business managers of the Central Market, on the other hand, do not display any distinctive characteristic in this regard.

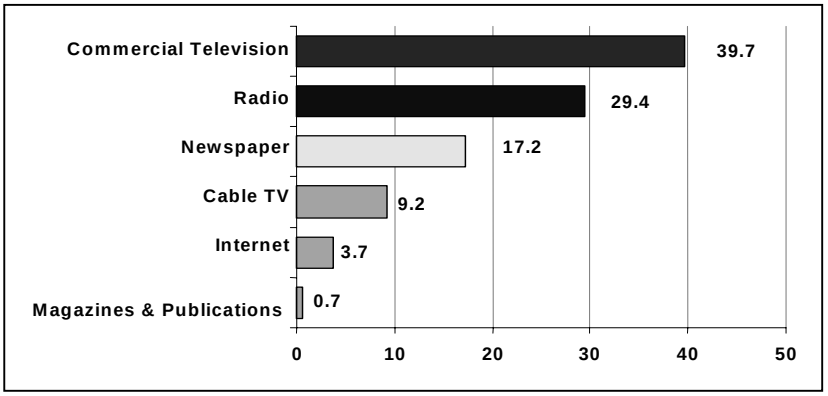
In keeping with widespread usage, the managers interviewed mentioned the following as the best way to receive information: commercial television (42%), radio (26%) and newspaper (14%). The reasons for this evaluation are mainly attributed to the quality of the audience and coverage area of such media (with greater emphasis on commercial television and radio). Credibility is a factor, fundamentally in relation to newspapers (11% vs. 6% in commercial television and 3% in radio).

FIGURE 19
DISTRIBUTION OF SME MEDIA USAGE BY BUSINESS DISTRICT



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

FIGURE 20
SME MEDIA USE

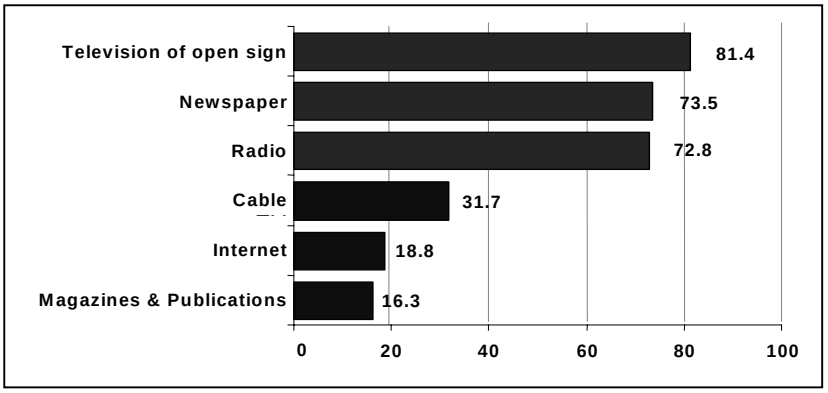


Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

The following conclusions were obtained from an analysis of the results:

Generally speaking, commercial television (81%), newspapers (74%) and radio (73%) are the media most widely used by managers in the business districts that were analysed. In contrast, cable television is ranked at 32% while the Internet (19%) and publications (16%) are even lower (see figure 21).

FIGURE 21
MEDIA MOST WIDELY USED BY SMES

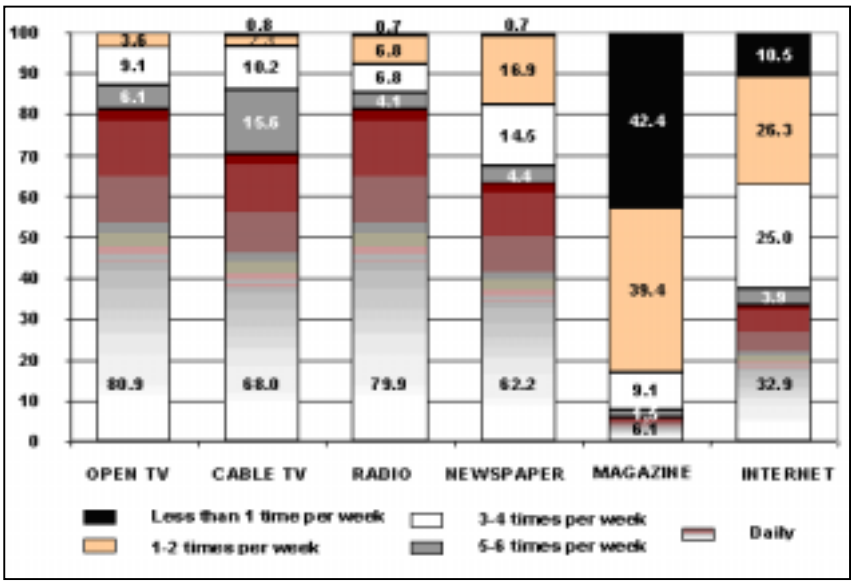


Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

When asked about the most frequently used media, the results obtained here corroborate the previous results, namely, commercial television (40%), radio (29%) and newspaper (17%), followed by cable TV (9%), Internet (4%) and magazines and publications (1%).

As a result of the study, 4% of interviewees reported the Internet as the most frequent method of accessing information. Within this group, recurrent use of the Internet can be categorized as follows: 19% of the total habitually use the Internet; 33% connect daily, 26% connect 1 to 2 times per day, and 25% connect 3 to 4 times per week (see figure 22).

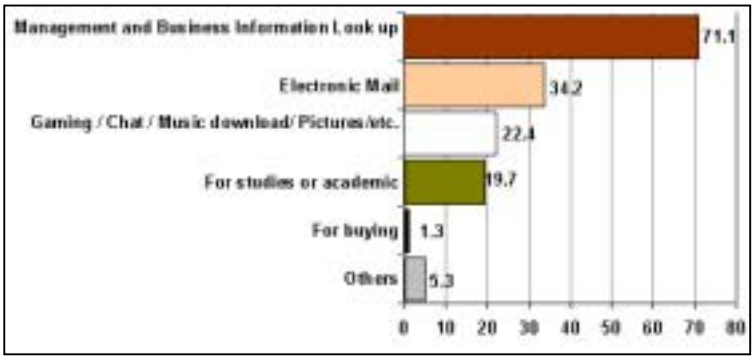
FIGURE 22
SME MEDIA USAGE FREQUENCY
(In percentages)



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

With regard to the main objective and use of the Internet, the following results were obtained: search for management information (71%), e-mail (34%) and entertainment (22%) (see figure 23).

FIGURE 23
INTERNET USE BY SMES



Source: Comisión para la Promoción de la Pequeña y la Micro Empresa (PROMPYME), June 2003.

Another significant finding on PC penetration and use is that, while 50% of managers/owners have a PC in their homes, only 32% have one in their business or office. Lastly, regarding the place where they usually use the Internet, 50% connect from public booths or telecentres, 25% from their business and 21% from their homes.

a) Which ICTs are currently being used by small firms?

Not simply in theory but corroborated by the study, ICTs are already generating benefits for the SMEs that use them. Our surveys showed that the ICTs can reduce costs in terms of money and time spent on business processes, and can improve the certainty and quality of such processes.

In terms of popularity, word processing remains the dominant application, e-mail and the spreadsheet tie for second place, followed by use of the World Wide Web. Growth rates are fastest in e-mail and the World Wide Web.

Companies that use ICTs typically display two characteristics:

i) Size: Given cost considerations, it is unlikely that firms with a yearly business of less than US$ 20,000 will embrace the use of ICTs.

ii) Sub-sector: ICT use is concentrated in a few sub-sectors where there are common ICT applications within the primary value chain, (e.g. printouts and advertising) or connections, or both, with suppliers or customers that use ICTs (e.g. firms with customers abroad).

b) Total cost of ICT ownership:

Firms tend to be very efficient at recognizing the total and immediate costs of possessing these technologies:

Hardware: the computer and its accessories (for example: printer, modem, UPS, etc).

Software: the operating system and application programs (i.e. those that are not plagiarized or pirated).

In contrast, firms are less efficient at recognizing the other components that contribute to the total cost of these technologies. Estimates of the latter costs can range from 60% to 70% of total costs, and may include:

- Operating costs: ink or toner for printers, paper, diskettes, CDs, energy, insurance, etc.
- Connection to the Internet: local call charges plus the fee for the Internet Service Provider. There may also be extra charges for the use of e-mail, and construction and maintenance of the company's website.
- Upgrade costs: new hardware and software required to keep up to date with rapidly changing trends.
- Training costs: attendance at formal courses, or self-training, such as courses given over the Internet (web training).
- Time costs in relation to the business manager and staff: The time that will be spent planning the introduction of ICTs, their installation, and moving up the learning curve. The time to be spent eliminating viruses and hackers, time spent on entertainment and web searches that are not related to the job, etc.

At least 90%, and probably even 95%, of all SMEs nationwide do not use ICTs at the present time. The reasons for this digital divide may include:

- Lack of money.
- Lack of skill or knowledge, or both.
- Lack of technological infrastructure, for example, electricity and telecommunications.
- Lack of other resources in the information chain.

- Lack of a "critical mass", i.e. not enough people or organizations in the local environment that use computers or e-mail, provide web content, or are able to make purchases using e-mail.

Some of these problems are being solved through ICT intermediaries or tele-centres (known in Peru as Cabinas Públicas), but many others cannot be solved in this way. Whenever possible, ICTs should perform supplementary tasks, rather than act as mere substitutes for other information-related technologies.

Our investigations identified four different categories of SMEs in relation to ICTs.

c) SMEs that do not use ICTs: other technologies first, then ICT tele-centres

This category encompasses firms that so far are not connected to any form of telecommunications or to any basic ICT network. It includes the vast majority of small enterprises in Peru.

The information requirements of such companies can easily be identified. They will be able to satisfy their needs more effectively through native and informal information systems than through formal systems based on ICTs.

Most firms that currently do not use ICTs, not only use native social networks to gain access to information but also intermediate channels, such radio and television, along with printed media, such as newspapers, news bulletins and manuals.

d) Users without access to information technologies: ICT tele-centre and better information practices

Although SMEs in this category do not use computers, they do have access to telecommunication services (particularly, telephone and fax) and they use them regularly.

Lack of financing and management skills, including staff training, is the key obstacle facing firms in this group. Many of them cannot meet the cost of buying a computer, so for many it would be difficult to obtain measurable benefits in the short and medium term.

This group would probably benefit much more if its existing information practices were to be improved using the information systems and technologies they already have in place.

e) ICT users not connected to a network: solid support for ICTs

ICT users not connected to a network are aware of the benefits of computers for small companies: they have access to computers in their business facilities, but their levels of computer use are always low.

ICT users not connected to a network frequently suffer from a lack of skills to manage their business; they therefore share many of the features of those who do not use ICTs. Before investing in better ICTs, it is necessary to fulfil the same initial conditions in terms of improving basic management and information skills. These firms would also benefit from improving their native and paper-based information systems.

Firms may need to expand their use of ICTs to maintain compatibility with their customers and suppliers; they may also feel pressure to adopt ICTs for fear of being overwhelmed by the competition, and to create a modern image. Nonetheless, failure rates in the use of new technologies are very high in this group. This can be tackled by simultaneously incorporating ICT use and the development of skills (for their use) in all training and technical support initiatives implemented.

f) Intensive ICT users connected to the Web; priorities for assistance with ICTs

These firms make considerable use of ICTs and their interconnectivity: frequent use of e-mail and the World Wide Web, and computer use in applications such as accounting and customer billing. Nonetheless, these firms have typically applied and adapted such systems mostly in an *ad-hoc* fashion. In many cases, employees do not have the necessary skills to effectively operate the systems that have been developed. In other cases, the development process itself is faulty.

In general, these companies benefit from a strategic focus on information handling. This helps them evaluate the costs and benefits of improving both systems based on ICTs and non-electronic systems. In some cases these types of firm are receiving additional help to maintain their current systems: for example, better perception of marketing and promotional advertising as a preliminary step to achieving more effective use of the Internet.

B. Timber

Events in the forestry sector in 2003 provide a number of issues for analysis. On the one hand, INRENA continues to award forest concessions under the new Forestry and Wild Life Act passed in July 2000, which so far has handed over 4,86 million hectares in 713 areas in the San Martín Region. Still pending is the definition of concessions in Huanuco and implementation of the process in the Loreto Region. In the latter case, envelopes in the public bidding process are due to be opened on 10 March 2004.

The timber sector is, without doubt, one of the most promising sectors for developing our exports. Its growth is supported by its enormous potential of available raw material and high international demand, which could make it one of the engines of the Peruvian economy. Nonetheless, official statistics show that timber exports at the end of the year are on a negative trend, which will erode the growth that the sector has been experiencing over the past few years. Domestic supply in 2003 was calculated at 758,780 m3 of which 713,053 m3 are used for local production and 45,727 m3 for imported products.

The current lower export figures, together with legal instability in forestry concessions, and the imminent restrictions to be imposed on mahogany exports —the main export product— as a result of its inclusion in Appendix II of the International Convention for the Trafficking of Endangered Flora and Fauna Species (CITES), as well as the extension of the Supplementary Economic Agreement, ACE, with Mexico for a period of two years, make the outlook for the next few years uncertain.

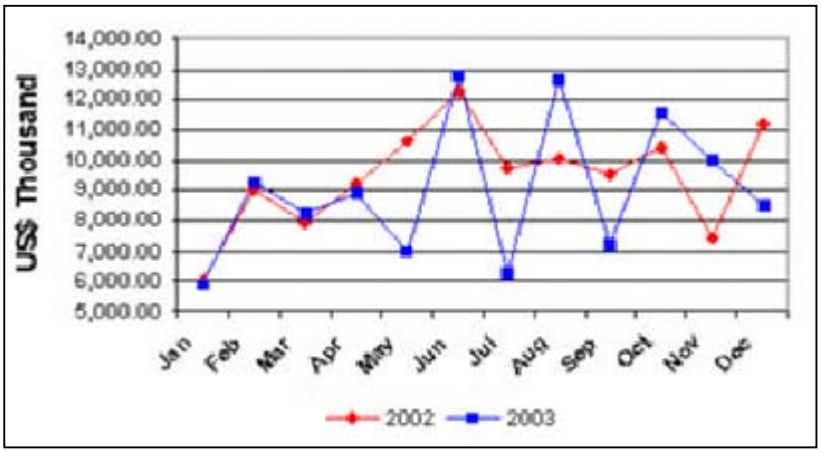
Consequently, the creation of joint work plans with public and private institutions involved in the sector's development, such as INRENA, FONDEBOSQUE, the Peruvian Council for Voluntary Forestry Certification, WWF-Peru, the Associations of Wood Industrialists of Loreto, Ucayali, Madre de Dios, and others, is imperative. Joint efforts between the sectors would undoubtedly have a dual effect. Firstly, local businessmen would be able to increase their knowledge of possibilities in the foreign market for timber and its by-products, thereby providing them with the opportunity to export more. Secondly, the use of a larger number of forestry species would be promoted, thereby increasing diversification and profitability in forestry development and contributing towards the viability of sustainable management of forestry resources (see table 30 and figure 24).

TABLE 30
TREND OF TIMBER SECTOR

Sector	Jan-Dec		Variation
	2002	2003	
Wood and related manufacture sector	113 520.4	108 197.8	(4.69)

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

FIGURE 24
TREND OF TIMBER SECTOR



Source: Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

The six products that generate 93% of the value of Peru's wood exports are: lumber, friezes and flooring; plywood, wood furniture, sheets and veneers, and chairs with a wood structure. As can be seen, comparing period 2000-2003, the lumber group —the main export item— fell by 6.52% because of a decline in exports of construction and bulk wood sub-sector products.

This fall occurred as a result of a reduction in sawn wood exports, where mahogany accounted for roughly 60% of the total. In contrast, plywood, coating for wooden floors and flooring increased slightly, but as these products account for 17% of the total the increase was insufficient to counteract the drop in the sector's overall exports. Wood furniture, veneers, and chairs with a wooden structure, have between them maintained almost the same values as in 2002 (see table 31).

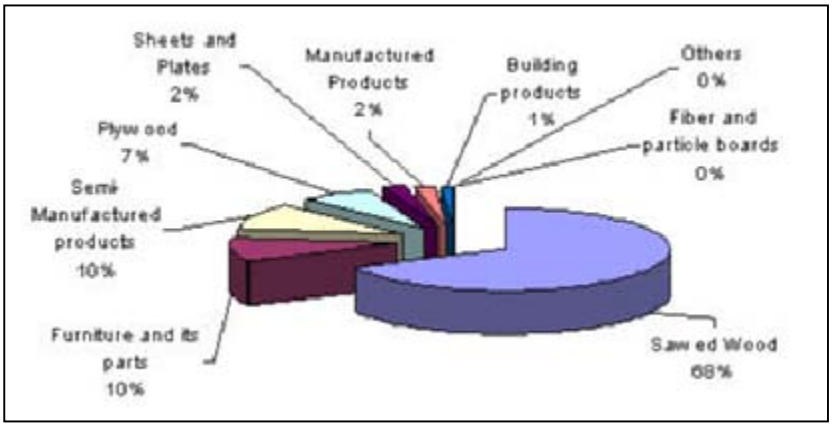
Figure 25 shows the decrease in the exports of sawn wood products, namely the mahogany and *cumala* wood species (4407240000), largely affected by the inclusion of Mahogany in Appendix II of CITES, which authorizes the extraction and marketing of those species provided they have been extracted from forests subject to management plans a provision which is only recently being implemented in Peru.

TABLE 31
WOOD SUB-SECTORS
(In thousands of U.S. dollars)

Item	Jan-Dec2002	Jan-Dec2003	Var.%	Share%
Sawed Wood	78,274.2	73,172.6	(6.52)	67.6
Furniture and its parts	10,466.6	10,823.7	3.41	10.0
Semi-Manufactured wood products	10,037.3	10,697.8	6.58	9.9
Plywood	7,673.5	7,751.8	1.02	7.2
Sheets and Plates	2,106.6	2,386.6	13.30	2.2
Manufactured wood Products	1,797.5	2,255.5	25.49	2.1
Building products	3,014.4	1,002.6	(66.74)	0.9
Fiber and particle boards	60.6	54.5	(10.13)	0.1
Firewood and vegetable charcoal	24.5	40.4	65.01	0
Wood in the rough	65.4	12.2	(81.29)	0
Total	**113,520.4**	**108,197.8**	**(4.69)**	**100**

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

FIGURE 25
DISTRIBUTION OF WOOD EXPORTS BY GROUP OF PRODUCTS, JAN/DEC-2003
(In percentages)



Source: Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

Other items where exports declined include plywood (4412130000) and wooden bedroom furniture (9403500000). Nonetheless, other wood furniture (9403600000), and chairs with wood structures (9401690000), display significant growth because more individual furniture is being exported.

The other items that displayed export growth were: sawn tropical woods (4407290000) (the note in sub-chapter 1), which registered exports of sawn hardwoods and volumes of cedar

and walnut timber amounting to 10.8% of the total volume exported, reflecting demand in the United States, Mexico and China. Another item showing a similar trend is other wood sheets for veneering (4408900000), a wood by-product that displays a particular marketing feature, since 80% of this product is exported from the river port of Iquitos. Another item that posted growth is 4407290000 (Sawn Tropical Woods in the note in subchapter 1), which contributed 12.1% of total exports, mainly due to demand in European countries for sawn hardwoods (see table 32).

TABLE 32
SAWN WOOD SUB-SECTOR
(In thousands of U.S. dollars)

Tariff Code	Description	Jan-Dec2002	Jan-Dec2003	Var.%	Share%
4407240000	SAWED VIROLA, MAHOGANY WOOD (SWIETENIA SPP), IMBUIA AND BALSA	65,575.5	56,694.3	(15.66)	52.4
4407290000	SAWED TROPICAL WOOD OF THE NOTE SUBP. 1 OF THIS CHAPTER	11,351.3	13,466.8	15.71	12.4
4409201000	TABLETS FOR FLOORING, UNASSEMBLED OTHER THAN CONIFEROUS	8,453.7	8,799.0	3.92	8.1
9403600000	OTHER WOOD FURNITURE	6,090.2	6,184.9	1.53	5.7
4412140000	OTHER PLYWOOD WITH AT LEAST ONE OUTER PLY OF NONCONIFEROUS WOOD	4,740.4	4,959.0	4.41	4.6
9403500000	WOODEN FURNITURE USED FOR BEDROOMS	2,607.9	2,484.7	(4.96)	2.3
4408900000	OTHER SHEETS FOR PLYWOOD	1,686.4	2,367.8	28.78	2.2
4407990000	OTHER SAWED WOOD OR PLANED LONGWISE, CUT OR UNROLLED	1,130.4	2,162.3	47.72	2.0
9401690000	OTHER SEATS WITH WOODEN FRAMES	789.5	1,175.4	32.83	1.1
4412190000	PLYWOOD OF WOOD SHEETS, NOT OVER 6 MM THICK EACH	939.7	1,152.3	18.45	1.1
4421909000	OTHER ARTICLES OF WOOD	730.2	1,011.1	27.78	0.9
4409209000	NON CONIFEROUS WOOD, OTHER THAN SIDING, FLOORING, MOLDING OR DOWEL RODS, CONTINOUSLY SHAPED ALONG ANY OF EDGES OR FACES BUT NOT ON ITS ENDS	903.4	955.6	5.46	0.9
Others		8,521.8	6,784.6	(25.60)	6.3
Total		**113,520.4**	**108,197.8**	**(4.69)**	**100.0**

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

1. Dominant timber markets

The most important markets for our timber products continue to be the United States, despite a reduction in its purchases, mainly due to the lack of supply of mahogany as following the new regulations and restrictions; the Mexican market which has increased its imports of sawn wood —*cumala, marupa*, cedar and plywood— by 10.3%; followed by Hong Kong (China) which registered a 2.6% increase compared to the same period last year, thereby maintaining its third position; and then China, also with significant 156% growth in its wood flooring imports. At present, 39 Peruvian companies in this sector are exporting to Hong Kong (China) as the leading market, followed by China, which confirms that these are the markets with the greatest export potential for value-added wood products.

There was also strong growth in other markets such as Puerto Rico, which increased its imports by 262%, mainly of other tropical wood species; and there was a significant increase in the exports to countries of the European Community, such as Italy, Denmark, Spain, the United

Kingdom and Germany, which require semi-manufactured products in hardwood, suggesting that these countries could become potential markets for other tropical species in the short-term (see table 33).

TABLE 33
TIMBER EXPORTS BY COUNTRY
(In thousands of U.S. dollars)

Country	Jan-Dec 2002	2003	Var.%	Share%
UNITED STATES	70,038.8	58,835.5	(16.00)	54.4
MEXICO	24,642.7	27,191.6	10.34	25.1
HONG KONG	6,881.0	7,059.8	2.60	6.5
DOMINICAN REPUBLIC	4,311.6	2,936.4	(31.90)	2.7
ITALY	1,743.5	2,732.2	56.71	2.5
CHINA	983.5	2,524.3	156.67	2.3
PUERTO RICO	535.1	1,277.6	138.75	1.2
SPAIN	369.1	1,055.9	186.05	1.0
DENMARK	279.4	487.9	74.58	0.5
AUSTRALIA	244.3	409.0	67.41	0.4
UNITED KINGDOM	51.2	384.9	651.96	0.4
GERMANY	122.4	308.5	152.09	0.3
OTHER COUNTRIES	3,317.8	2,994.1	(9.76)	2.8
Total General	**113,520.4**	**108,197.8**	**(4.69)**	**100**

Source: Superintendencia Nacional de Administración Tributaria (SUNAT), prepared by Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

2. Dominant wood products by market

The following table on exports by product and end-market shows that the sawn wood group continues to have the largest demand in several countries, chiefly the United States, Mexico, Dominican Republic, Hong Kong (China) and China. The second product, in order of importance, is furniture and furniture parts, and semi-manufactured wood, in which the United States is the leading importer, followed by Hong Kong (China), China and Italy. Veneers and plywood and wood sheets continue to be exported to the main end-markets of the United States and Mexico.

China and Hong Kong (China) continue to be potential markets for semi-manufactured wood products for flooring. In the case of wood furniture and furniture parts, along with wood handcrafts, the Italian, Puerto Rican, and Mexican markets registered export growth, along with the United States market, which shows that Peruvian wood products with higher value added are gaining popularity in new markets.

In the Chinese and Hong Kong (China) markets, firewood and charcoal posted significant export growth (see table 34).

TABLE 34
EXPORTS BY WOOD SUB-SECTOR AND COUNTRY
(In thousands of U.S. dollars)

ITEM/COUNTRY	UNITED STATES	MEXICO	HONG KONG	DOMINICAN REPUBLIC	ITALY	CHINA	PUERTO RICO	Others
SAWED WOOD	44,843.0	19,072.4	1,452.0	2,864.8	51.3	267.8	1,062.9	3,558.5
FURNITURE AND ITS PARTS	9,222.0	15.9	---	9.0	1,074.6	---	176.5	325.6
SEMI-MANUFACTURED WOOD PRODUCTS	1,667.1	106.3	5,595.9	---	654.5	2,247.5	---	426.5
SHEETS AND PLATES	1,203.9	1,179.6	---	---	---	---	---	3.1
MANUFACTURED WOOD PRODUCTS	908.2	7.5	---	62.6	917.3	---	37.3	322.7
BUILDING WOOD PRODUCTS	827.2	38.3	---	---	15.6	---	0.9	120.7
PLYWOOD	159.4	6,732.2	---	---	---	---	---	860.2
FIBER AND PARTICLE BOARDS	4.2	39.4	---	---	---	---	---	10.8
FIREWOOD AND VEGETAL CHARCOAL	0.5	0.1	11.9	---	18.9	8.9	---	0.1
WOOD IN THE ROUGH	0.0	---	---	---	---	---	---	12.2

Source: Comisión para la Promoción de Exportaciones (PROMPEX), Reporte del sector Maderas año 2003, Lima, 2004a, March.

3. Ranking of timber companies

The lumber company, Maderera Bozovich SAC continues to be the sector's leading export firm. Despite a drop in its overall exports in 2003, it has actually increased its exports of higher value-added products, such as friezes, chiefly to the Asian market. These account for 39% of total exports and position the firm as the leading exporter to this market, followed by Palacios Hnos., Corporación Maderera SA, Industrial Ucayali SAC, and King Lumber Company SAC.

The leading exporters of sawn wood such as Maderera Vulcano SAC, Procesos Industriales Madereros SAC, and Industrial Ucayali SAC also suffered a drop in their exports. Similarly, in the case of the main exporter of household furniture, Exportimo SAC, which contributes 5.35% of the sector's total exports, foreign sales were down by about 17.11% from the previous year's figure. Nonetheless, in 2003 exports of wood furniture and parts grew by 6.58%, basically due to the participation of new furniture export companies and the expansion of traditional exporters to new markets in the European Community —firms that jointly account for 48% of total furniture exports.

It is worth mentioning that the wood and wood products sector in the Loreto Region is becoming a potential development centre for Peruvian exports, since it accounts for 12% of the sector's total exports, exporting mainly sawn wood such as *cumala, marupa* and other value-added wood products, such as broomsticks, stakes, and blanks. These products are shipped to Mexico and the United States every two months because only one vessel flying the national flag of the shipping line, Naviera NAPSA, visits the port of Tampico in Mexico, and Houston and the Everglades in the United States.

Entrepreneurs in the Loreto Region are highly interested in penetrating the American market with flooring made of hardwoods such as *violeta, estoraque, quinilla, shihuahuaco* and *tahuarí.*

4. Exportimo S.A.C.

Peru's largest export furniture producer currently produces 80% of its total furniture exports. Close to 40% of Exportimo's production is FSC certified, and there are plans to expand this to 95% FSC certified production by the end of 2005. Four years ago, Exportimo completely phased out the use of mahogany because of the illegal logging associated with it and the effects its harvesting was having on the rainforests. Since then, the company has switched to alternative hardwood species, such as *mohena* and *sauco.*

a) Products/Services: Manufacture of wooden furniture for household use.

Fresh out of business school with a background in chemical engineering, Gerry Cooklin Chairman and CEO of Exportimo and South Cone (a United States based distributor) founded the business in 1987 with a vision to create a company that could manufacture high quality craftsmanship furniture in Peru on an industrial production scale. It did not take long for Cooklin to achieve that vision.

While Exportimo welcomed success, it did not want to achieve it at the expense of people or the environment, especially in Peru. With the conviction that Exportimo could and should be a vehicle for positive change by consciously seeking to engage in practices that are socially and environmentally sound, its research led it to the Rainforest Alliance's SmartWood forest auditing programme, and the Forest Stewardship Council (FSC), whose global standards are the most rigorous of all certification systems.

In 2001, South Cone and its factory in Peru, Exportimo, which employs 450 workers, was certified by SmartWood under FSC standards. Unlike illegally logged mahogany, certification guarantees that every person in the production chain, from logger to furniture maker (also known as the "chain-of-custody"), knows exactly where the tropical hardwoods come from and that they are harvested according to the highest standards of forestry management.

Around the world, the Rainforest Alliance's SmartWood programme works with the FSC to set standards for environmentally and socially responsible forestry practices. Certification is central to our Forest Stewardship Council (FSC) efforts — a seal of approval that assures customers that the wood products they are purchasing come from forests managed to conserve biodiversity and support local communities. Certification —whether of large forest management companies, indigenous landholders, community operations or public lands— is performed by the Rainforest Alliance's Global SmartWood network of regional offices and independent non-profit conservation organizations.

Four years ago, Exportimo completely phased out the use of mahogany, precisely because of the illegal logging associated with the species. Since then, the company has relied on alternative hardwoods, such as *sauco* (*xanthoxilon*), *yesquero negro* (*cariniana estrellensis*) and *eucalipto* (*eucalyptus grandis*), which come from FSC-certified forests.

Exportimo efforts do not stop with the manufacture of its furniture. To further the company's environmental commitments, it established Partnerships and Technology for Sustainability (PaTS), a Peruvian-based non-profit organization dedicated to linking sustainable resource management with the global marketplace. Much like the Rainforest Alliance's TREES programme, which links producers and buyers of certified wood, PaTS works with indigenous and local communities on forest management, helping to establish market linkages, identifying uses for secondary species and fostering additional sources of income, such as ecotourism, timber and non-timber forest products (NTFPs).

The first PaTS initiative is underway in the Palcazú Valley in Peru's central Amazon region. The project site covers more than 700,000 acres (283,280 hectares) of rainforest, an area that includes the home of the Yanesha people and the Yanesha Community Reserve, the Yanachaga-Chemillen National Park and the San Matías-San Carlos Protected Forest. The programme teaches local people how they can improve their lives by deriving more economic benefits from the wood species in the forests.

More recently, the company has launched an awareness-raising programme to educate consumers and retailers on the benefits of certification. The aim is to inspire other furniture companies also to source their raw materials from Smart Wood/FSC certified forests.

Exportimo had already passed through the transition point of formalization and integration of its total processes. In that regard, the manufacturing process starts by drying the wood in their own kilns to ensure its stability; this is followed by a rigorous industrial production process, and culminates in the handcrafted finish that reflects the high quality of their product. Exportimo's qualified design team is responsible for developing new models that keep it at the forefront of the industry and enable it to respond to specific needs of its customers. Thus, for example, use of internal information in the business has become more important year by year. The overall business was suffering, like the industry, from a lack of productivity, because of the inability of workers to meet production targets in terms of time and quality. In fact, generally in the industry, there were no clear targets set and there was no structured system of work for the workforce to follow. Jobs were just given to workers with no set times allocated for different processes. At that point a basic system was introduced using "Worksheets" to be filled in for each job, with times specified for each process (preparing, cutting, assembling, finishing, etc).

Calculations are also made concerning materials used per cubic metre and final unit costs for individual items. These, as a start, have effectively developed a basic internal management system that uses input prices of materials and labour time to calculate unit costs, as well as keeping production records. In recent years a more sophisticated system, was designed in-house to meet the specific needs of their business, and all areas —design, manufacturing, administrative and financial— are using ICTs.

b) Information Use

Globalization and the focus on export activities forces Exportimo to deal effectively with contractors, and to organize information systems in an effective way that is complementary with both suppliers and contractors. As a result, decisions have been made on the basis of good quality information. The business has benefited from operating predominantly in the export activity, through its partnership with South Cone. It has been forced to improve its information systems and enhance its information practices to comply with the demands of suppliers and customers.

c) ICT application

ICTs applied across the business have been effective in improving workflow and raising productivity. Exportimo has applied ICTs in a way which it thinks will benefit the business, while also realizing that it would probably add to costs through further training for staff, investment in new hardware/software, and additional time spent implementing systems. In terms of its IT infrastructure it deployed a network based a Windows NT 2000, server, with a group of windows-based clients, using SQL SERVER as database and Visual Basic for its client-server applications. Another important part of its infrastructure is the design equipment based on workstations using CAD tools such as AUTOCAD and INVENTOR.

The firm emphasizes the use of ICTs in the production processes, implementing a system that tracks each order using bar code technology. This means that each part of a given piece or product in the production line is tagged with a bar code label, so the system can read how many pieces were finished and how many are in progress at each step of the process. This information is then compared with the original order, and it can be checked whether the committed delivery time will be achieved.

It is also important to mention that its applications development strategy takes advantage of the outsourcing model, allowing Exportimo to focus on its core business and just keep a small team for systems operation and basic maintenance.

Its future plans include the acquisition of equipment and software to allow for a fully automated process for cutting the pieces of wood in order to gain productivity and save costs in this stage of the production process.

The firm has connected to a local Internet service provider, and e-mail and Internet access have proved useful to them. Internet is used for most communications with customers and providers; to support its sales force in obtaining information on stocks and shipments leveraging the web presence of its partner SouthCone; for a virtual catalogue of the products produced by Exportimo, and more importantly as a means to maintain their distribution channel in the United States, which is their primary market.

5. Export promotion: PROMPEX

Legislative Decree 805 dated April 3, 1996 created Peru's Export Promotion Commission: PROMPEX with a mission to undertake commercial and promotional activities for Peruvian goods and services exports.

a) The PROMPEX vision

To serve as the Peruvian export promotion agency integrated into a dynamic foreign trade system, leading a network of institutions engaged in the promotion and development of Peruvian exports. Prompex thus seeks to execute efficient actions aimed at generating a competitive, diversified and value-added supply, to manage the development of international markets with a forward-looking approach, to earn the support of competitive businessmen with a technically-based labour force and export-oriented culture; to act as an implementing agency of export promotion policies in agreement with the Exporting National Strategic Plan (PENX) which promotes exports through exportable-supply development tools; to open up international markets and develop business management support actions coordinated with public and private sector initiatives to yield a competitive exporting country and contribute to job creation.

b) Objectives

Promote economic and social development in Peru, based on the growth and diversification of exports.

- **General Objective**
  - To promote the growth and development of exportable goods and services based on comparative and competitive advantages.
  - To encourage openness, consolidation, and diversification of exporting markets.
  - To turn Peru into an important global logistic hub.
  - To foster investment in export activities.
  - To position and defend Peru's exporting product image.

- To support development and consolidation of the region's exportable supply based on competitiveness and decentralization criteria, prioritizing small and medium-sized enterprises.
- To promote an export culture with accountability in Peru.
- To strengthen an integrated system of exports, development, and promotion, and support enterprise competitiveness.

c) Institutional strategy

(i) Market development

- Intensive programmes for openness, consolidation, and diversification of international markets.
- Commercial intelligence and specific market research are the basis for market actions, jointly executed with the Ministry of Foreign Affairs, emphasizing the use of conventional export promotion mechanisms, such as fairs, missions, roundtables, exhibits; along with new penetration schemes like sales centres.
- Market promotion actions will be targeted to take advantage of international commercial agreements.
- Special attention to the consolidation and protection of the image of Peruvian products on international markets.

(ii) Exportable supply development

- Actions aimed at resolving critical issues in the export chain that hamper and limit sustainable export development.
- To prioritize the promotion of value added products —generators of productive jobs.
- The implementation of promotional services and mechanisms should aim at developing and diversifying the range of export products, and widening the exporting firm's base.
- Support for the exports of quality products in accordance with technical and health requirements prevailing on international markets.
- Strengthening of the concept of productivity, and the culture of quality and creativity as a component of awareness of "Peru as an Exporting Country".

(iii) Enterprise management development

- Support for the creation of institutes, associations, and other forms of private strategic partnerships aimed at exportable supply development.
- Definition and implementation of solutions for productive chain problems requires links with institutions and private and public organisms.
- In the midlands, consolidation of alliances with public organizations, private associations, and local managers is needed to strengthen service centres in the cities, which have greater export potential.
- Establish technical and financial cooperation agreements with international institutions and organizations to implement export promotion programmes.

d) Export promotion programmes

The following multi-sector programmes serve as instruments designed to deal with several aspects of markets, products, and enterprise management development.

(i) PROMPEX market analysis and research

Jointly executed with the Ministry of Foreign Affairs, and particularly with Commercial Offices around the world, this programme aims to identify products that have potential in international markets, provide individual services for exporting companies with the aim of compiling up-to-date information and evaluating target markets to adapt commercial strategies to the specific requirements of each market. This includes the development of market profiles, sales tests, and the production of business agendas. Each company receives a market profile and a list of buyer contacts with information about their requirements or characteristics.

(ii) Exporta Peru Programme

This programme was created to improve SME export management skills by defining and executing export plans. The components of the EXPORTA PERU programme are: "Formando Exportadores" (Training) and "Hecho a Medida" (Tailor Made). The goal of the programme is to create an export plan that clearly defines the product's characteristics, the target markets, the costs and export price, and the promotion strategies in international marketing and distribution channels.

(iii) Exporta Calidad Programme

This promotes the implementation of quality systems (such as ISO and HACCP) among SME exporting companies, and acts as a management tool that works for cost reduction, boosts confidence, and creates a sense of accomplishment between suppliers and clients. There are two phases of implementation: "Camino a la Calidad" (On the Road to Quality) and "Hecho a Medida" (Tailor Made).

(iv) E-commerce

This provides technical support to small and medium-sized exporting companies that have been operating for at least two years, on how to maintain an active presence on the Internet, providing basic alternatives such as the presentation of products in e-catalogues and virtual fairs, including the execution of e-commerce projects managed by the company.

In order for the participating companies to expand their commercial actions, PROMPEX has developed an Exportable Supply Vertical portal, which includes tools such as the company's directory, and a virtual stand to promote products and services. Small and medium-sized firms can also receive technical support through seminars, conferences, and specialized e-commerce workshops.

(v) PROMPEX STAT

This provides statistics on Peruvian exports classified by tariff code, market destination, FOB value, and net and gross volume. Users enter the site with a password. The system was designed with the Economic Promotion Office of the Ministry of Foreign Affairs. The exporter has access to classified information held by PROCOM (Business Opportunities Programme) and can obtain information about foreign commercial demands via fax or e-mail. The Commercial Offices, Economic Advisers, and PROMPEX Information and e-commerce Office input demands into the system.

(vi) Peru market places: The SME strategy for e-commerce

Based on the results obtained in an earlier project in which 13 companies benefited from an e-commerce programme with the European Union, PROMPEX decided to change the strategy for this programme.

The new strategy of the e-commerce programme would concentrate on developing an Internet portal for the presentation of SME exporters and their products, including functions allowing all company information on the portal to be administered remotely by the firms themselves, thus, giving them independence with respect to PROMPEX support. Aspects of

interactivity were also included on the portal allowing potential buyers to contact firms by selecting the products appearing on the portal. When a product is selected, the portal automatically prepares a request for a proposal, which is sent to the firm that owns the requested product. In other words, firms participating in the programme access a "website" inside a specialized portal, a virtual marketplace, a system for proposal requests, for order follow-up, and a platform for creating marketing plans based on the traffic generated to their website.

Consequently, the objectives were revised to include SME participation. Execution of the strategy to implement the new objectives involved two phases.

- The first phase covered the following:
  - Development of the portal's technical platform to offer exportable Peruvian products. The portal was named: perumarketplaces.com
  - Recruitment of the consulting team.
  - Promoting the programme and creating awareness.
  - Searching for partners.
- The second phase included:
  - Request SMEs to affiliate to the programme, i.e. to enrol in the portal by signing the affiliation contract; 82 SME companies signed.
  - Execution of the e-marketing plan and development of an e-marketing manual.
  - Register the portal <perumarketplaces.com> with 150 web searchers.
  - Links and exchange programme. An exchange programme was designed and transmitted by e-mail.
  - Preparation of programme manuals: Operations Manual, Portal Organization and Functions Manual.
  - Preparation of training seminars and conferences to increase awareness, including presentation of the portal.
- Results of the programme

TABLE 35
COMPARATIVE SUMMARY OF RESULTS RELATIVE TO OBJECTIVES

	Objectives foreseen	Objectives attained
1	Participation by 200 SME companies in awareness and training activities in four events.	440 SMEs participated in seven awareness and training events.
2	40 SME exporters to benefit with technical assistance allowing them to apply B2B and B2C	82 SMEs affiliated to the portal: <perumarketplaces.com>
3	100 web pages to implement and 100 electronic catalogues for 100 companies.	The portal allows SMEs to use an address of the type below: <www.perumarketplaces.com/sme>, which includes full administrative rights and hosting services. The portal not only includes the SME's virtual catalogue, but also the functionality to generate proposal requests
4	Make strategic alliances with associations, unions and institutions related to the foreign trade of the country.	Alliances with ADEX for personalization and administration of the portals, with the Crafts and Wood Committee, and with the Wood Committee respectively. Alliance with D&B Peru to provide the service of enterprise credit checks on companies that participate in the portal, including a commercial reports service.

Source: Author.

This e-commerce programme, operating through the perumarketplaces.com portal, provides SME exporters with a tool that facilitates their presence on the Internet to promote their products, because:

(a) The portal has 82 affiliated companies of which 30 are totally engaged in production, and PROMPEX continues to incorporate new companies.
(b) Another 173 companies are already pre-qualified for affiliation.
(c) In the first month after launching the programme, the 82 affiliated companies received more than 3,100 visitors to the portal, which generated approximately 20,000 “page hits”.
(d) More than 65% of the visitors were outside Peru, mainly in the United States.
(e) The portal is registered with more than 150 web searchers.
(f) It is a specialized portal with rules for qualifying participant firms.

C. Problems for SMEs participating in the trade-oriented value-chain

1. Constraints on SME development in Peru

SMEs that attempt to start export activity encounter considerable difficulties in directly exporting their goods for themselves. This requires an individual approach to all production and marketing tasks, and to the logistics of the export process, which in many cases is beyond their control because of financial, human resource, infrastructure, and organizational limitations, compounded, more often than not, by a lack of market knowledge.

Recent policies to remove trade barriers and reduce tariffs have generated sustained import growth, affecting all SMEs that produce for the domestic market. They now need to find ways to meet this new competition. Moreover, SME links to the international market will remain weak, and possibilities for export development may be reduced to a small portion of these firms. Although under some circumstances SMEs have certain advantages in terms of flexibility, they generally display structural deficiencies in their operations, caused by their small size.

As outlined above, there has been rapid economic progress since 1992; nonetheless, there is a wide range of constraints/barriers inhibiting enterprise start-up and growth in Peru.

2. Human capital constraints

Various studies in the SME sector have reported a very low level of education among the owners and employees of such companies. Figures published by INEI, PROMPYME and the Ministry of Labour state that an average of 30% have no education at all, while 40% have completed only primary school. Analyses also show that firms that have experienced growth (10 or more employees) have owners whose educational level was significantly higher, with 65% having secondary or higher education.

3. Lack of an entrepreneurial tradition

It is often suggested that Peru lacks entrepreneurial skills and motivation, since there has been no tradition of citizen ownership within the formal/modern business sector. Immigrants or other non-Peruvian citizens from neighbouring countries or further a field have tended to dominate a large proportion of formal sector business activity.

This lack of experience runs the risk of being self-reinforcing. For example, INEI studies show that the owners of 58% of recent business start-ups have either owned another small

business or have previously worked in a small business. A review of different Peru-based studies on micro and small-scale enterprises carried out since 1995 also show this to be the case. Approximately 62% of all business owners surveyed had been engaged in some form of business activity, either as business owners or employees, before starting their current business.

The Peruvian population at large thus lacks the business-related family background or the personal experience of the formal business sector, which is closely related to levels of enterprise start-up and ownership.

4. Insufficient backward/forward linkages

Studies show that the overwhelming majority of Peru's SMEs sell directly to the final consumer. Only some larger SMEs in the manufacturing and service sectors have larger and more established customers, with other firms constituting 20% of their customer base. It was also found that enterprises with forward linkages were more likely than others to grow and have higher employment levels. For SMEs, raw materials are likely to be sourced from local suppliers — over 80% of cases. The most popular sources of raw materials were wholesalers and large retailers, and these predominantly supplied imported goods.

For formal-sector SMEs, the range of customers and suppliers is far wider. The former includes individual consumers, government entities, other SMEs, and large businesses. It has been noted that commercial forward linkages to the large enterprise sector are still not well developed in Peru.

5. Competitive pressures

Evidence tends to show that other similar-sized businesses operating in the same locality are providing the greatest competitive pressures on SMEs. In many sectors, such as dress-making and shoe-making, the provision of government assistance for start-ups has led to over-trading. For urban-based SMEs, intensified competition is more likely to come from directly imported products and services (predominantly from the Far East).

Another problem that SMEs generally have to face with respect to competitive pressures is lack of negotiating power, which is one of the most critical obstacles in the process of internationalization. SMEs owe their limited representation in exports to their size, which only allows them to offer small quantities, which are generally insufficient for the demands of bigger markets.

Finally, SMEs usually lack a professional commercial organization that assures them a trade flow and an effective presence in external markets, because of the relatively high costs of maintaining such an organization.

6. Constraints of market demand

SMEs in Peru are overwhelmingly dependent on domestic markets, usually those located within the immediate vicinity of the enterprise. Weak market demand is a critical factor inhibiting businesses in Peru. Some reports show that about 25% of informal SMEs regard lack of demand, combined with increasing competition from imports, as their main problem. For urban-based SMEs, there is a similar reliance on domestic markets, with only a very small number of enterprises involved in export activity. Another characteristic of the formal sector market is the importance of government, both local and central, as the major customer. Many manufacturing firms only survive through preferential purchasing arrangements, which guarantee up to 40% of total government procurement for local SMEs in selected goods.

7. Financial constraints

Lack of investment/working capital and cash flow problems are frequently cited in surveys as being the most serious obstacle/problem facing SMEs. Limited and unequal access to the formal credit markets, irregular access to national and imported raw materials —all of them at high cost— insufficient use of productive capacity, inadequate infrastructure services, lack of technical knowledge, and existing administrative deficiencies —to name a few— overwhelm most SMEs.

In a workshop organized by PROMPYME and the private sector, about 50% of SME owners reported lack of financing as a major start-up problem, and 80% identified this as the most serious constraint on business development. Furthermore, 40% listed lack of information on financing sources as the main problem.

8. Lack of premises

Based on an INEI study, about 73% of all SMEs, including manufacturing enterprises, were based in residential premises. Many other businesses operate from substandard premises that are too small, badly located, or do not provide the necessary infrastructure, transport, or communication services.

9. Technology/technical constraints

In addition to the digital divide, Peru has an extremely limited local technological capability, and most of its technology is still imported. Technical expertise has probably been built up through specific learning within SMEs, considering that there is little subcontracting and workforce mobility is high. Local initiatives for research and development through an organization called CITE (Centro de Innovación Tecnológica), specifically support SMEs, providing consultants, supporting informal linkages, and facilitating partnerships and other inter-firm relationships.

As the size of SMEs gets bigger, access to technology is becoming a major constraining factor. For example, considering micro-enterprises only, 10% of respondents regarded lack of technology as a problem after start-up, and 14% considered lack of machinery as a major problem for their businesses.

IV. Government policies designed for SMEs, IT and international trade

A. IT policies in the country's overall development strategy

Preparation of this report on the situation of government policies towards information and communications technologies in Peru has focused on those developed by the National Office of Electronic Government and Information Technology, which indicates the development level in terms of implementation and use of ICTs.

This framework has been used to evaluate the Peruvian government's action plan on role of ICTs in the creation of new opportunities, elimination of access barriers to information, and in elimination of physical and virtual isolation among individuals, promotion of efficiency in production and distribution, and reduction of transaction costs for individuals, firms and government.

The five areas developed as part of State policies correspond to: leadership, connectivity, information security, human capital and e-commerce.

The leadership area highlights creation of the Commission for the Development of the Information Society (CODESI), establishment of the National Office of Electronic Government and Information Technology (ONGeI) attached to the Prime Minister's Office, reform and modernization of the State, where the ICT is a key instrument, and finally design of the National Plan for Science, Technology and Innovation (PNICyTe), which incorporates the National System of Investigation, Development and Innovation in ICT.

In the connectivity area, statistics and indicators have been updated to show information more transparently: telecommunications, Internet readiness, number of hosts and suppliers of Internet services.

In the information security area, the use of free software and publication of an inventory of proprietary software used by Government, updating of the Regulation on Digital signatures and regulations for information security in National Administration Offices.

In the area of human capital and e-commerce, which highlights consolidation of the Huascarán Programme and rural education programmes including tele-education, along with studies carried out on e-commerce in Peru.

Lastly, the 2003-2006 National IT Development Policy raises the need for public-private sector coordination to promote a National System of Investigation, Development and Innovation in Information Technologies, as a network of agents that will develop information technologies in Peru.

These efforts were started by a variety of entities such as the Peruvian International Cooperation Agency-APCI, the Peruvian Chamber of Software, and recently the Peruvian Association of Software Producers (APESOFT).

B. Policies to support SMEs: the Peruvian development strategy and policies to promote the SME sector

The aim of the strategy is to consolidate SMEs in the sector technologically, organizationally, economically and financially, guarantee external and internal conditions, and allow them sustained development in the medium and long term. The new macroeconomic environment of opening up to external markets, poses new and more difficult challenges for firms in the sector. This strategy should help SMEs face them with success.

The strategy should motivate and help firms in this sector to generate more employment, improve interaction with large companies and with each other for cluster purposes, and incorporate the best and most recent technology available. Adapting to the new model of flexible specialization, SMEs can easily use the financial and non-financial services offered to them to boost their creativity and generate technological innovations, improve their competitiveness, leverage the information revolution, and interact efficiently and effectively with the Government. They will be able to recognize potential strategic alliances, develop trust relationships with their partners and necessary security measures vis-à-vis the competition, develop their sensitivity and social responsibility towards the environment, contribute to equal income distribution, train and motivate their staff, stay alert to national and international changes, and be leaders of their area, region, or country.

As Michael Piore, author of “The Second Industrial Divide”, stated, the problem with the small company is not its size but its isolation. The current characteristics and conditions of the economy hinder the survival of SMEs that remain alone with no contact with other companies, support institutions, universities, or business organizations. The strategy should put an end to such isolation. To achieve this, a series of polices and specific instruments are required that range from performance in their product markets to consolidation of service markets, in order to attain the competitive conditions prevailing in the global markets where SMEs operate. Considering that the new macroeconomic environment generated very tough competitive conditions for SMEs, in a way it makes sense to begin with the instruments to open new markets and create opportunities (product markets), and then move on to key input markets to achieve the necessary competitiveness in the global market.

Policy 1: Expansion of product markets

a) Instrument 1: Government procurement

Every year the Government carries out goods and service procurements in the domestic market under Law 26850. Nonetheless, as these regulations are not integrated into the organizational reality of the country, a broad sector of SMEs are in many cases excluded from this potential business. Following liberalization of the economy, this situation has become complicated because many public agencies have turned to foreign products rather than domestic

production. Following the examples of developed countries that use government procurement to expand markets for small companies should allow a significant percentage of procurements to assist firms in this sector. The recent Law No. 28015 passed through Supreme Decree No. 009-2003-TR states in its 19th article that at least 40% of government procurement must go to the SME sector.

b) Instrument 2: Development of subcontracting

Subcontracting has been the key instrument in the development of the small enterprise in Japan, Taiwan Province of China, and other countries; but unfortunately this has had a minimal effect in Peru. Progress can be made through persuasion campaigns including incentives for medium-sized and large companies that have the potential to become contractors, thus, increasing the expectations of these firms in the SME sector. The components of a programme released by the Ministry of Production include the following:

(i) Encourage small and large firms to work together
(ii) Increase the competitiveness of small firms
(iii) Create sub-sector information systems
(iv) Coordination with interested promotional institutions
(v) Economic incentives for participants

c) Promotion of exports

As mentioned above, SMEs have scant participation in Peruvian exports, thereby losing the opportunity to make an important contribution to the national economy. In this sphere, PROMPEX, along with ADEX and other private institutions, are using advisory activities, training, information, and participation in international fairs, but so far with little impact on the sector. There is still a long way to go in harnessing government resources, such as the Ministry of Foreign Affairs, which should be acting like a genuine partner of the SME sector, expanding markets and seeking opportunities in foreign countries.

Instrument 1:

Support the formation of clusters among small firms, either for exports to offset government procurement through imports, or to meet the demands of the large companies. Efforts being made by PROMPEX and PROMPYME and other institutions in this respect should be increased and sustained.

Instrument 2:

Organization of Local Fairs: Although SMEs should try to participate in national and international markets, they should not abandon their current strength, i.e. local markets. Firms in this sector can expand their market by organizing periodic fairs (back to school, Independence Day, Christmas, etc.), or permanent ones (every weekend or end of month). Generally, private initiative can organize these fairs with small investment. Local governments and federal bodies can contribute with facilities, land, and advertising.

Instrument 3:

Implement a coherent tariff policy that assures competitiveness for domestic producers in relation to their counterparts in other countries of the region, along with commitment and firmness in the struggle against smuggling, and in controlling illegal dumping practices. Open dialogue with the authorities and government institutions responsible for these issues is also required.

Policy 2: To develop the portfolio of services with emphasis on the SME sector

a) Instrument 1

Consolidation and expansion of centres for the development of management capabilities (modules or service centres, for example) that offer services, either directly or through third parties, according to local SME needs. The aim is to promote the creation, consolidation, and development of service markets needed for SME modernization.

b) Instrument 2

Promote the transfer and creation of modern technology in the SME sector with new technologies and long-term credit lines for acquisitions, including the creation of programmes for technological innovation in productive areas with the potential to develop and establish technological investigation centres, known as CITEs.

c) Instrument 3

Information intelligence is needed to increase competitiveness. This variable becomes one of the key factors for the success of SMEs. Given the initially high investment required, a joint initiative is needed between the public and the private sector to become a reality for the SME. A good example of such a policy is the project entitled Integrated Foreign Trade Information System (SIICEX), which integrates the services and infrastructure of the public and private institutions that generate, process, and publish information on the foreign trade sector. The aim of this project is to maintain an extranet/intranet portal that can be used to access the Integrated Foreign Trade Information System project, which would offer centralized and secure access to the various resources and services published on this portal. The portal would integrate information from a variety of institutions for online queries and host content, and deliver what each of these institutions offers. The project's specific objectives include the following:

- Have the Web interface represented through an extranet/intranet portal that allows for implementation of SIICEX.
- Provide systematized, specialized, and up-to-date content that promotes and facilitates the decision-making process in the promotion and administration of Peru's exportable supply.
- Provide specialized and classified information adapted to the requirements of Peruvian companies and institutions that develop foreign trade activities, and whose communication channel will be the SIICEX portal.
- Maintain statistical information, databases, and other sources that allow for the generation of negotiation scenarios providing results to evaluate different alternatives in the decision-making process.
- Provide export firms with access to commercial and up-to-date value-added market information that supports the creation, penetration and consolidation of new markets.
- Establish mechanisms for training SME users, and the dissemination of content using information technologies as well as mechanisms available in the web, controlled and administered through the portal.
- Create a repository of information, allowing for access to information sources from diverse institutions, a repository that can be accessed and administered through the portal.

The potential benefits to be obtained from implementation of this system may be classified according to the information needs of two types of users: public institutions and labour unions involved in the design of policies and decision-making related to the foreign trade sector, and enterprises and potential exporters.

Similarly, SIICEX provides impact indicators through its portal that establish user intent with regard to information requirements in the export sector.

The scope of the SIICEX system based on the content it hosts is summarized below:

- The portal is equipped to manage a diversity of content, categorized as public access, and restricted access resources. Resources that are compatible with the SME sector are those of public access.
- SME portal users can consult these resources without any requirement, including their personal identification. The resources are accessed through the Internet.

The following services are available for registered users of the portal:

- An account to access the portal.
- A group of web pages for each registered user —which will be used as virtual offices.
- A content area that allows the user to publish information.
- An e-mail account with limited storage.
- A Web interface to access the respective mail account.
- Users can register their opinions on specific topics through virtual forums.
- Events and training programmes are published.
- Access to an e-learning module.
- Participation in surveys with simple selection questions and reports to visualize the results of the surveys.
- To allow completion of the export chain, the portal allows for the registration of firms that offer complementary services to normal export activities.

Another important element of the SIICEX project is the promotion, trade, and competitive intelligence module, which is integrated into the portal's functionality. The specific objective of this module is to "foment commercial promotion through the registration of foreign demand and diffusion of this information".

Another module is responsible for exportable supply and managerial administration, with the following main functions: to offer up-to-date specialized and systematic content that promotes and facilitates decision making in the promotion and administration of Peruvian exportable products —specialized supply and qualified information adapted to the requirements of SMEs and Peruvian institutions that engage in foreign trade activities. This module seeks to give the exporting community commercial access to updated value-added market information to support the opening, penetration, and consolidation of such markets; to control, evaluate, and follow-up with information that is published and accessed through the portal; to obtain statistics on user types, area of work, navigation period, type of information accessed, among other values that will gauge the coverage of the portal.

Moreover, it was necessary to follow up on published exportable supply, which was distributed to portal users to determine whether the economic sector benefited in any way; to create an electronic payment infrastructure for certain products or services offered through the portal, or to serve as a channel between buyers and bidders. And finally, to allow the publication of information of interest to the exporting community, on tariff rates, standards, technical barriers, competition policies, and complementary services on foreign trade.

d) Instrument 4

To allow SMEs access to financing through credit lines and formal financial institutions, such as FOGAPI and FONREPE.

The creation of new financial intermediaries for the sector, such as EDPYMES, Rural Tellers, and the new Municipal Tellers (in more distant municipalities) is also a highly positive step; and it is expected that a larger and more diversified supply, supported by the expansion of competition, will lead to lower interest rates, and to the development of financial products that are better suited to the sector.

Policy 3: Improvement and adaptation of the legal and regulatory framework

Law No. 28015, on Promotion and Formalization of the Micro and Small Enterprise, passed through Supreme Decree No. 009-2003-TR, and published on 12 September 2003, seeks among other things to promote the micro-, small and medium-sized enterprise sector in the following ways:

a) CODEMYPE

The National Council for the Development of the Micro and Small Enterprise (CODEMYPE) serves as an advisory body accountable to the Ministry of Labour (article 7). It has a technical secretariat in charge of the national management of SMEs (article 8). Its operation will be established through the organizational and functional regulation to be approved within a maximum of 30 days following its installation (article 10).

b) Promotional instruments

Promotional instruments for development and competitiveness of SMEs start from the premise that the Government promotes training services and technical support, prioritizing the creation of new enterprises, and strengthening SMEs and their association with other small enterprises with export and job creation potential (article 16).

It will also implement promotional measures for private institutions that offer training and technical support to the SME sector (article 17), such as formation of consultants and trainers, best practice contests, internships, incentives and promotion of managerial development services, and transfer of methodologies and technologies.

c) Access to market information

The regulation establishes that SMEs can enter into association contracts to gain greater access to the private market and to government procurements (article 18).

The regulation notes that PROMPYME facilitates SME access to government procurements (article 19), through dissemination of annual purchase plans, demand mechanisms, goods and services supply, promotion of consortia, subcontracting programmes, and centralized negotiation mechanisms.

It also states that regional and local SMEs must have preference (over other SMEs not located in their area) when government purchases are carried out in their area, and they must also have an alternative system to that in which bid bonds have to be presented. Government entities

are required to submit their annual budget to PROMPYME for publication, and reserve at least 40% of total purchases for the SME sector.

d) Export promotion

The National SME Administration, in coordination with PROMPYME and the other bodies mentioned in the article 23 of the Regulation, will publicize up-to-date information on export opportunities for the SME sector.

Policy 4: Institutional strength

The strength of SME institutions and promotion of the small firm is becoming increasingly complex and more decentralized; it can force active participation by the sector's representatives in different instances of promotion, at the public or private level.

C. Special measures to correct the 'digital divide' between enterprises

As a result of a Peruvian Government initiative, the Commission for the Development of the Information Society (CODESI), a multisectorial public-private commission, developed a strategy throughout 2004 to gradually eliminate the digital divide. A summary of its polices and strategies for human development is as follows:

D. Policies and strategies for the development of human skills

1. Policy 1:

Promote the Peruvian citizen's development in the information society from a personal, work, and productive perspective, taking advantage of the opportunities offered within this new context, hence reducing the risks of exclusion.

2. Strategy

Develop the citizen's skills through the various stages of personal development in the information society:

a) 0-5 year-old level

- Promote the development of child educational software.
- Design training programmes for grade school instructors with the aim of promoting digital literacy among their students.
- Promote the creation of educational materials that stimulate child curiosity through digital educational games, reading pleasure, and use of the computer.
- Promote the use of information technologies in child libraries.
- Promote the "Library Friend" project founded by the Ministry of Education for children between 3 and 5 years old.

b) 6-12 year-old level

- Promote projects that generate access to and adoption of ICTs such as electric and electronic apparatus among children.
- Promote the pedagogic use of ICTs when integrating them into the curriculum in developing skills and learning.
- Support programmes that promote critical reading in children.
- Develop programmes that familiarize children and parents with the use of local public, and school libraries, in order to train them in information search.

c) 13-16 year-old level

- Promote pedagogic use of ICTs when integrating them into the curriculum in developing specific skills and achieving potential learning situations.
- Promote shops that help students formulate evaluation criteria for themselves on the information they process.
- Disseminate current legislation that protects and respects intellectual property.
- Promote the participation of students in opinion rosters.
- Develop online participation programmes, which stress the importance of written communication skills, ensuring that the messages travelling through the Internet are clear and precise.
- Develop programmes that familiarize adolescents and parents with the use of local public, private and school libraries, in order to train them in information search.

d) 17-25 year-old level

- Recommend that the National University System makes it mandatory to define digital and information literacy to students and teachers.
- Establish digital and information literacy programmes in public libraries.
- Promote the accreditation of universities that offer quality library services through the use of ICTs.
- Promote cultural extension courses for non-university youth and adults in digital and information literacy.
- Promote the formation of new skills, the key being technological innovation in the task of higher learning institutions.
- Develop programmes that familiarize citizens and their families with the use of local national and international, private, public, and school libraries, within various contexts such as the existential and the virtual, with the aim of training them in their quest for information.

e) 25 year-old level and up

- Strengthen the National Library System to consolidate public library networks integrated through ICTs.
- Develop programmes that familiarize citizens and their families with the use of local, national and international, private and public school libraries, within various contexts such as the real and the virtual, with the goal of training them in their quest for information.
- Encourage websites containing public information to show content that is accessible and specific to disabled, incapacitated, and high-risk-of-exclusion groups, among others.
- Promote the formation of new work skills, the key being technological innovation.

- Encourage the production of alternative methods of information media such as diskettes, audiotapes, Braille prints in large type, and others.
- Promote programmes that motivate online synergetic work.
- Promote programmes for managing information resources in public libraries.
- Encourage long-term economic, social, and cultural programmes that consider strategic investment as the premise for providing basic services to indigenous cultures, and promoting their autonomous organizations in a joint effort between the private and public sectors.
- Promote support from different sectors to stimulate self-management in the handling of new technologies and in the creation of content as part of the assimilation process and training of indigenous users.
- Encourage the identification and training of rural and urban indigenous organizations that find themselves in a position to self-manage community information system undertakings.
- Formulate policies at the national level that encourage research and development.
- Motivate the private sector through tax relief, to enable it to support research facilities for industrial development including the creation of new technologies, exploitation of raw materials, etc.
- Create strategic partnerships with the private sector in order to study the country's natural resources, and their exploitation and sustainable development.
- Create research incentives in the universities.
- Give credit to universities that maintain a system of interconnected libraries for research institutes in all disciplines.
- In teacher training programmes, encourage investigation among children and adolescents.
- Boost potential in exploiting the software industry through the creation of centres of excellence, and technological funds for ICTs, all with the required formal support when adapting and updating legislation to the new ICTs.
- Train teachers, and university and technical school educators on the use of acquired technology, and create public zones (with acquired technology) in all public and private educational centres.
- Adapt physical, technological, and human resources to facilitate the inclusion of disabled persons in the work force.
- Encourage the implementation and maintenance of e-government web pages so that their design complies with the accessibility norms set by World Wide Web Consortium (W3C) and Web Accessibility Initiative (WAI).
- Support the introduction and dissemination of international standards on ICTs, together with standards for e-learning and the use of resources, tools, and technological services.
- Support projects to create acquired technology or adapt current technologies to the needs of the disabled.
- Offer access and use of ICTs under equal terms, keeping in mind such aspects as gender, generation, disability, ethnics, and culture.
- Strengthen the State's corporate library services and network integration using ICTs, with their active participation in e-government.
- Create and develop a virtual community of scientists, writers, artists, and craft workers, indicating their specialty.

- Stimulate the private sector by offering researchers platforms for dissemination and publication.
- Coordinate efforts to include government, private enterprise, and the public in creating a network of information on job vacancies, employment opportunities lists, training, and general information on the labour market.
- Keep information in State public websites up-to-date.
- Implement specific programmes to access technologies; starting with a comprehensive diagnosis undertaken with active participation from the indigenous communities, respecting their social, cultural and economic structures.
- Implement long-term programmes that allow intra-community analysis to decide how ICTs will be incorporated, on the premise that the indigenous communities might decide not to use them in the same way as other national social groups.
- Encourage, through contests, the publication of essays and research material in all areas, to be shared with the community.
- Provide educational opportunities to older adults through virtual extension courses at all (educational) levels in public and private schools and universities.
- Maintain continuous educational programmes in the universities.
- Motivate the extensive use of communication space on the Internet.
- Create a National Centre of Acquired Technology (CNAT) within CONCYTEC.
- Help reduce levels of prejudice and discrimination in Peruvian society, through specific communicative actions.
- Promote positive attitudes toward ICTs in the indigenous population and in its leadership.
- Promote illiteracy reduction programmes and raise the population's overall educational level, particularly through ICTs.
- Promote favourable attitudes among the population towards the incorporation of ICTs.
- Promote the method of shared access to ICTs through telecentres in rural and semi-urban areas.
- Enable instances of social, local, and community control that guarantee the effectiveness of the coordinating mechanisms, which control the administration of information resources and supervise equal distribution at the community level.
- Promote the development of research guidelines on methods of assimilation, access, types of use, objectives, and projections of current participation by indigenous groups and individuals in the information community, focusing on in-depth studies of paradigmatic and representative cases.

E. E-government aimed at SMEs and trade promotion

1. National office for e-government and data processing

Under Supreme Decree No. 067-2003-PCM, the Regulations governing the Organization and Functions of the Cabinet's Presidency, published in the official newspaper, "El Peruano", on 28 June 2004, establish that the National Office for e-government and Data Processing depends directly on the Secretary of Public Administration. The functions of the National Office for E-Government and Data Processing are as follows:

- Promote State policy on e-government and data processing in accordance with the Plan for the Development of the Information Systems Community in Peru, created by the multi-sector Commission for the Development of the Information Systems Community (CODESI).
- Set standards and coordinate the development of e-government and information systems activities in public administration, thus driving its modernization.
- Create actions aimed at consolidation and development of the National Information System Administration.
- Design and develop the national e-government strategy, and coordinate and supervise its work.
- Coordinate the development of data processing solutions with branches of government to optimize public administration.
- Coordinate and supervise the functional integration of the State's information systems.
- Coordinate and supervise the development of Internet websites for public sector organizations, in order to establish a single window to serve companies and citizens.
- Outline the characteristics of the State's contractual policies, as prescribed in Line III of Supreme Decree No. 031-2002-PCM.

The e-government strategy aspires as much to increase citizens' access to State information services as to improve the efficiency of public administration. An e-government policy will be developed and implemented for this purpose, which includes the institutionalization of the organization, policies, and standards of e-government; the development and installation of online services (through the Peruvian State website) as well as the development and implementation of the State intranet, and a single window to serve all citizens. The training of government officials and advising citizens on the development of these new information technology tools will supplement these efforts. With regard to the administration of e-government purchases, the programme's purpose is to increase the transparency and administrative capacity of the Peruvian State in relation to government procurement, by institutionally strengthening the State's Superior Council of Contracts and Acquisitions (CONSUCODE), and by development and implementation of the e-government procurement system (SEACE), thereby creating greater opportunities for the network of small firms and micro-enterprises. The implementation of these activities includes financing the information infrastructure, training, disseminating, and supporting the system.

Furthermore, COISIP was created to increase the efficiency of public administration and improve living standards, enabling citizens to carry out their functions in an integrated, efficient and transparent manner using ICTs. This multi-sector Commission for Integration of the State's Information Systems and Technological Platforms, was created through Legislative Decree R.M. 334-2003-PCM with the mission to set forth guidelines for integrating information systems and technological platforms in the various entities of governance, and to develop and implement the State's pilot e-payment programme.

The extent of these proposals is clear at all levels of government, such as the powers of the State, which will focus initially on the efficient administration of existing technologies, rather than acquisition of new ones. They are in the development stage of policies and strategies that will lead them to effectively install e-government in the country.

Improving domestic connectivity in Peru is a priority, along with simplifying processes and achieving greater transparency in State procurement, establishing certification and digital

signatures (to be fully identified to carry out transactions), integrating the State's systems (single window), and creating a methodology for administrative simplification, among others.

2. E-procurement strategy

TABLE 36
POLICIES AND STRATEGIES OF E-GOVERNMENT

Policies	Strategies
1. To bring governance and its processes closer to citizens.	Implement a system of governance websites: homepage, thematic, regional, and municipal.
2. To transform State entities into an integrated and systematic network.	Development and installation of the State's system of electronic signatures and digital certificates, and the creation of a qualified Administrative Authority; development and implementation of the State's e-payment platform; development and implementation of the Citizen Services Website; development and implementation of Peru's Space Data Infrastructure, and development and implementation of the State's transactional network platform.
3. To efficiently, rationally and reliably manage government information services.	Implementation of norms and security mechanisms in government systems and online operations.
4. To simplify procedures and allow the reception and delivery of information using networks and electronic media.	Design and implementation of a unique system of processes and file follow ups that incorporate the advantages of online systems; implementation and provision of pilot services for all citizens. This requires a unique system for online identification and payments, and implementation of an infrastructure for electronic signatures and digital certificates in public administration (regulatory and standard).
5. To facilitate access to government information and improve the quality of information managed by the State.	Place all documents online, together with progressive elimination of paperwork processed by public administration, and online administrative simplification that allows for progressive elimination of paperwork as the sole information medium.
6. To achieve greater transparency and effectiveness in government procurement processes.	Implementation of a centralized online government procurement system.
7. To create an institutionalized culture for the effective use of ICTs in governance.	Implementation of a programme of continuous training in IT for all technical personnel in public administration.

Source: Author.

The main objective of the e-government procurement system (SEACE) is to "increase the transparency and administrative capacity of the Peruvian Government in State procurement", by implementing electronic procurement mechanisms.

Other objectives associated with the implementation of the SEACE include:

- Regulate and audit the market for public procurement and contracting.
- Provide incentives to free competition, transparency, and broad access to equal opportunity in public procurement.

- Increase transparency in goods, services, and public works contracts.
- Encourage new suppliers to enter niches with little competition.
- Create an information and intelligence-purchasing centre at the disposal of society.
- Generate significant economies of scale, homogeneous quality, and support for after-sale services.
- Reduce size distortion and bargaining power between large suppliers and small contracting entities.

SEACE will be established as custom-built software designed on the basis of an analysis of international best practices, covering three main areas: dissemination of information on the selection processes to suppliers; a mechanism to facilitate the development of e-procurement transactions; and a mechanism to implement information transparency in the fight against corruption.

SEACE will be 100% web-based, and the use of standard protocols in its design should keep in mind the current characteristics of the information infrastructure in our society. Because of the digital divide among SMEs, only a fraction of the system's potential users possess their own computer infrastructure, which is why most of these users will connect to the Internet from public booths located across the country. Interfaces therefore need to be kept as simple as possible, avoiding the use of Java applets and any mechanism that will result in the installation of application clients on PCs.

Given this reality, SEACE must be built entirely on the Internet platform, thus ruling out procurement of any client/server solution that can be obtained in the market, since it would be impossible to install a system of this type on a nonexistent infrastructure. This idea must also take account of the security solution applied to all the transactions undertaken in the framework of a selection process in SEACE. The solution must be economical and not overburden the system. Other technical aspects that need consideration include communication protocols that use certified standard protocols, such as TCP/IP with SSL as a secure means of communication and standardized communication ports, since some users will be connected behind firewalls and proxy servers.

This web characteristic will allow local and regional governments to incorporate easily into the system, and since it will not be a client/server-based system an *ad-hoc* infrastructure will not be required to operate it (no personal computers or client software).

It is essential to allow for coexistence between the Internet and traditional mechanisms based on physical methods and manual procedures, thereby allowing suppliers to work according to the traditional system.

Even if suppliers choose to participate through electronic means and access SEACE to follow up and obtain information on the selection processes they take part in, they will always be able to participate physically in the different public acts related to the selection process. This coexistence will last until SEACE becomes mandatory after the gradual installation process is completed.

Also, given that the introduction of institutions in the digital world requires a certain level of investment, allowing for connectivity, training, and "*culturalización*" of supply officers, contracting public entities must be inserted in SEACE gradually and progressively in line with the available communication system infrastructure and connectivity, duly registered in the RENIEC. However, ultimately SEACE will be the mandatory dissemination mechanism for all State procurement and contracting, so all contracting entities will have to use it.

SEACE must be able to support selection processes and related public formalities (known under the current law as public bids or tenders or both, public contests, and direct public contract awards), and also selection processes without related public formalities (known under current law as selective or direct awards, and small quantity awards).

Besides supporting the mechanisms traditionally used here and now, the system should allow processes to be carried out through new mechanisms such as reverse auction, demand accumulation, and adherence to master agreements, which also require the current law to be amended.

Accordingly, SEACE will include electronic mechanisms allowing for:

- Publication of annual procurement and contracting plans, and their respective modifications.
- Advance publication of basic requirements in complex selection processes.
- Publication of advertisements and notification via e-mail.
- Notification of annulled processes.
- Cancelled processes.
- Collection of fees by electronic means
- Forwarding of questions, considerations.
- Publication of replies to questions and observations, and notification thereof via e-mail.
- Forwarding and reception of technical and economic bids.
- Publication of the act of opening technical bids.
- Publication of the winning bid and the qualifications spreadsheet.
- Information on objection status: appeals, reviews, and their outcome.
- Publication of contract summaries and after-sales evaluations.

SEACE should be prepared to develop virtual public proceedings, with all actors participating in the Internet (public entities, suppliers, and notaries). This means that SEACE will have to incorporate mechanisms allowing notaries to act through electronic means. The system administrator should enable this functionality through configurable options.

Web searching for the citizen within the SEAC system should incorporate a web interface through a general access page with its own counter, allowing for control of the number of times it is accessed.

It must support the following activities:

- Consult the convening processes that are about to begin.
- Consult the status of on-going processes.
- Consult the status and result of finished processes.
- Consult agreed unit prices.

This web search will be shown graphically within a historical perspective that makes it possible to compare the price trend of a given product or service. Clicking on a price will bring up the process data and the respective contract.

Web searches will cover a variety of areas: time (range), entity, sector, statements/conditions/specifications, geographic location, process type, purpose of the process, amount (range), supplier, etc. Searches will be designed in a way makes it possible to delve deeper with a click of the mouse: for example, from geographic location to entity, from entity to process, from process to contract, then to the supplier and to the supplier's record, or another specific process, etc.

The web interface must allow process follow-ups, listing the progress of each one within the general process, displaying the stages that have been completed, allowing the user direct access to published documents (basic bid requirements, questions/considerations, etc). It must also make it possible to:

- View the basic requirements of a specific process.
- Purchase the basic requirements through the web (only for duly registered and authorized suppliers).
- View the replies to questions and observations on the process, including amended or explanatory documents on the basic requirements or both.
- View the results.
- View summarized contract data.
- View purchase statistics with data on unit prices, and agreed amounts by product, entity, geographical location, time period, amount, process type, supplier, etc.

It is important to mention that the National Catalogue of Goods, Services, and Public Works (CNBSO) is currently in the implementation stage. A subcommittee has been created for this topic, and its final recommendation is summarized below:

The Peruvian State should adopt an existing catalogue system currently implemented internationally. The alternative of developing a domestic cataloguing system is therefore ruled out, although it is recognized that the ability and national experience exist to create one, as shown by the catalogues of MEF, EsSalud, MINSA and other important organizations. This conclusion is based on the need to have available, a reliable and duly proven cataloguing system that can reduce implementation time. The significance of adopting this system lies in assuming the functionality of the system, and the modifications needed to reflect national reality, bearing in mind the original structure of the chosen system.

Of the various alternative-cataloguing systems evaluated, two display the best characteristics and functionalities required for Peru: the North Atlantic Treaty Organization (NATO) cataloguing system, and the United Nations Standard Products and Services Code (UNSPSC) system. Both alternatives must be completed within the requirements of the Peruvian national reality, and be related to national classifications. Of the two suitable alternatives, the NATO cataloguing system requires less effort to implement. This system contains a larger number of characteristics required for Peru than the UNSPSC system, however; so both systems have disadvantages to be overcome. Nonetheless, the NATO system would be easer to implement since the goods are incorporated at the purchase detail level.

3. Electronic identification mechanisms

According to the requirements —apart from the establishment of secure connections in both directions— bids sent electronically must include electronic identification mechanisms instead of the traditional handwritten signature.

Given the special characteristics of this project, these mechanisms will not use physical means, such as tokens or smart cards, or any other element of this type that implies higher costs for the user.

With regard to electronic identification mechanisms, these guarantee the document confidentiality, integrity and authenticity. Confidentiality relates to the capacity to keep an electronic document inaccessible to everyone except the person to whom it is addressed. Integrity refers to the capacity to ensure that the content of the electronic document received by the addressee has not suffered any modification. Authenticity refers to the capacity to determine that the author has give his recognition and commitment to the content of the electronic document.

The confidentiality and authenticity issues must be resolved with electronic or digital certificates. SEACE will have the capacity to use either type. The current regulatory framework for digital certification and electronic signature should also be changed so

that the State and SEACE users can use this security mechanism without incurring excessive costs that could represent a barrier to SME participation and a negative factor in system implementation.

4. Customs procedures

In the early twentieth century, customs activities were carried out by the Customs Superintendence, which in 1947 was consolidated under the National Foreign Trade Council and the Superior Customs Council. These institutions were created during the government of President José Luis Bustamante y Rivero to supervise foreign trade and foreign exchange flows, and, among other measures, prohibit the import or export of goods without prior presentation and authorization of the required paperwork, permits or licenses.

In 1969, Decree Law 17521, changed the Customs Superintendence back into the General Customs Office under the Ministry of Economy and Finance. In 1973, the institution was made a technical and governing body under the Ministry of Trade, before returning once more to the Ministry of Economy and Finance. Then from 1978 to 1988, under Law 2829, the National Customs Administration was created as a public, decentralized institution of the economy and finance sector, with operational, technical, financial and administrative autonomy. During the mid-1980s, the Customs Office was moved to a building on Lord Cochrane Avenue in the residential district of San Isidro. The offices operated there until 1992, when the institution acquired its own headquarters, in an unprecedented sequence of changes that raised the Peruvian Customs Office from secondary level with a tarnished image, to become an exemplary institution and leader among customs bureaus in Latin America.

The modernization process began in 1992 with a sequence of administrative and procedural improvements, and was intensified in 1996 when decentralized operative intendencies began sharing trade information online. Further modernization followed. This is a process of continuous improvement, in the knowledge that international trade cooperation accompanies global technological progress.

In December 1999, the Peruvian Customs Administration certified its shipment process under the International Certification of Quality Assurance System under ISO 9000 rules, and was the first customs administration to obtain certification and the first to gain recognition from the World Customs Organization.

The need to consolidate and maintain the standards achieved in the modernization process, led the Government to pass a new Customs Act in 1996. Article 3 of this Customs Act clearly established that “in rendering customs services, the Customs Administration will have to adjust its quality system to the demands of the International Quality Assurance Norms”.

On July 2002, Supreme Decree 061-2002-PCM, merged the National Customs Superintendence and the National Superintendence of Internal Taxes, in an effort to further modernize the State as a whole, seeking integration of functions and organizational competencies within the public sector.

The integration of tax and customs administrations is a global trend, adopted by countries such as Brazil, Argentina, Colombia, Venezuela, Spain, Mexico, Guatemala, the Netherlands, and Canada.

Lastly, merger also reflects the need to increase State revenues in the long run, through joint actions to provide better services and enhance fiscal audits, and prevent smuggling.

5. The application of customs valuation under the WTO agreement

The traditional concept of customs activities as a way to obtain tax revenue and control the flow of goods entering the country has varied over time, especially as a result of the agreements adopted in multilateral trade negotiations at the Tokyo and Uruguay rounds, in which customs offices were recognized as international trade facilitators. This latter concept was incorporated into the body created in 1994 to expand worldwide trade, namely the World Trade Organization (WTO).

Against this backdrop, and in the light of economic globalization the developed world decided to adopt a standard method to value merchandise, thereby enhancing the growth of international trade.

Use of the WTO Valuation System to determine the tax base of goods subject to import duties is particularly important not only because its supersedes the Brussels Definition procedure, whose main characteristic was to obtain income for the State. The WTO Valuation System is also designed to protect productive sectors that are considered sensitive or strategic for national development.

Within this context, it is extremely important to take the correct steps in applying the WTO Value System, to avoid or minimize a possible decline in customs revenue, but also to avoid its misuse by unscrupulous economic agents, or to conceal unfair trade practices such as dumping.

In brief, customs valuation is undoubtedly a very important issue, and it needs to be remembered that to benefit from its application, full knowledge is needed not only of its use but also of its implicit conditions, such as the generation of efficiency, optimization of competitive advantages and, above all, integrated participation by economic agents.

The WTO Valuation System came into effect on 1 January 2000 and covered 50% of the tariff structure in its initial phase. On 1 April 2000, the application of the WTO Valuation system was extended to the entire tariff structure.

In 2003, Law 27973 abolished the Imports Verification Regime, which required physical verification of goods by authorized verification firms at the port of embarkation. Under this new Law, as from May 2004 the Peruvian Tax Administration (SUNAT) will perform the activities carried out by verification firms.

The Peruvian customs service is a public institution responsible for the administration, collection, control, and revision of international merchandise traffic, modes of transport, and people within national borders. For this purpose, there are customs offices at all ports and airports where goods enter (import) and depart (export) from different countries and to other markets, in addition to control posts at key points on the highways inside the country.

Although the customs service was created in 1773 as a revenue collecting institution and foreign trade supervisor, its organizational form and legal status have changed during its history. At present, customs functions are carried out by the National Customs Superintendence, which is governed mainly by the following laws and regulations:

- **Law No. 24829:**
  Law creating the National Customs Superintendence passed on 7 June 1988 and published the following day in the Official Gazette El Peruano.
- **Decree Law No. 26020:**
  Organic Law of the National Customs Superintendence, passed on 24 December 1992, and published in the Official Gazette El Peruano on 26 December 1992.

- **Resolution of National Customs Superintendence No. 000226:**
  Approves the statutes of the National Customs Superintendence, published on 16 February 2001.
- **Decree Law No. 809:**
  General Customs Law, passed on 18 April 1996, and published the following day in the Official Gazette El Peruano.
- **Supreme Decree No. 121-96-EF:**
  Regulations of the General Customs Law, published on 24 December 1996 in the Official Gazette El Peruano.
- **Supreme Decree No. 122-96-EF:**
  Table of Fines Applicable to Violations Foreseen in the General Customs Law, published on 24 December 1996 in the Official Gazette El Peruano.
- **Supreme Decree No. 059-95-EF:**
  Regulations on Baggage and Household Goods, published on 4 April 1995.

6. Importation of merchandise

Various types of procedures apply to the importation of goods, some of them related to the objective of the procedure and some to the goods themselves. These types are:

a) Definitive import

Importation is a schedule through which customs authorizes the legal entry of goods from abroad, destined for use or consumption in the country.

b) Importation of samples of no commercial value

Samples of no commercial value are goods that are used only for demonstrating the characteristics of the product; they have no commercial value in themselves, and must not be sold in the country.

In the case of products sold by measurement of length, the samples must not be longer than 30 cm.

Products not considered samples of no commercial value include pure chemical products, drugs, toiletry articles, and liquors even in miniature bottles, manufactured goods and objects that display propaganda.

Samples of no commercial value are exempt from customs duties.

c) Imports of emergency shipments

Emergency shipments are goods that by their nature require preferential treatment. Urgent clearance procedures must be regularized within a non-extendable deadline of ten (10) days after unloading has been completed.

Under the General Customs Act, goods can be released with certain facilities, limiting customs control to the minimum necessary. Emergency shipments include human organs, human blood and plasma, perishable goods and substances, goods for medical and ichthyologic research, radioactive substances, live animals, perishable goods susceptible to decomposition or deterioration; explosives; fuels and inflammable products; newspapers, magazines and periodicals;

medicines and vaccines; precious stones and metals, paper currency, dyes and coins; goods in bulk, large and heavy goods; hazardous freight; parts and pieces for machinery, and inputs needed to avoid interruption of a productive process, etc.

d) Importation of emergency aid shipments

Emergency aid shipments are those destined to help victims of natural disasters, epidemics and accidents. The General Customs Act allows for release with emergency aid shipment facilities, applying the minimum customs control. Goods in this category include vehicles and other forms of transport, foods, medicines and vaccines; clothing, tents, prefabricated houses, etc.

e) Importation of postal shipments

Post includes letters, cards, postcards, printed matter, Braille materials, small packets, parcels, and the shipment of documents, money, cassettes and diskettes and compact discs providing they do not exceed four units, and other items according to the classification of the Universal Postal Convention.

Small packets and parcels must not exceed 2 kilograms and 30 kilograms in weight, respectively.

The FOB value of postal shipments and postal parcels must not exceed US$ 2,000.

f) Importation of postal shipments for embassies

Customs authorizes the clearance of diplomatic bags containing small parcels that have visible indications outside as to their characteristics and only contain diplomatic documents and objects for official use.

g) Importation of goods for the diplomatic corps and international organizations

Representatives of the diplomatic corps and international organizations accredited in the country are permitted at the end of their postings abroad to bring in, free of Ad-Valorem Duties, General Sales Tax and the Selective Consumer Tax, their furniture, household goods, personal effects and one automobile, all of which must be proportionate to the established position.

h) Importation of postal shipments of a total value not exceeding us$ 1,000

Postal shipments that are exempt from tariff duties are parcels or packets mailed for personal use, or for the exclusive use of the addressee, including gifts that do not exceed US$ 100 in value per shipment, up to a limit of US$ 1,000 per calendar year.

i) Importation of special vehicles and prostheses for handicapped persons

Clearance is permitted of special vehicles and prostheses, to be used exclusively by handicapped persons, with exemption from tariff duties and with payment of the General Sales Tax, Selective Consumer Tax and Municipal Promotion Tax via cancellation documents. The vehicles may have a maximum value of US$ 10,000 CIF. To be granted this exemption, a Ministerial Resolution certifying the condition of the handicapped person must accompany the Customs Declaration for Import.

7. Export of merchandise

Export procedures are relatively simple and relate to the purpose of the export itself. These are:

a) Definitive export of goods

Definitive export will not be authorized for goods that are considered to be of national cultural or historical heritage, or both; or for goods classified as prohibited or restricted, unless restrictions have been lifted, a procedure that can be authorized at customs posts, airports and authorized borders. Definitive export is not subject to any tax or duty. For statistical purposes only, a no-value rate of 0% will be applied.

b) Definitive export of goods for non-commercial purposes

This category encompasses the legal departure from the country of goods for non-commercial purposes, which given the quantity, quality, type, use, origin or value in question, are presumed not to be for trade, and whose FOB value does not exceed US$ 2,000. They are processed with a simplified declaration without using the services of a customs agent.

c) Re-importation of goods exported under the definitive export system

Interested parties may request the reimportation of their exported merchandise, by presenting proof, within twelve (12) months from the date of shipment, that the goods were not accepted in the destination country.

d) Shipment of goods

Goods subject to the export system must be shipped within a maximum of ten (10) days from the date of numbering of the Shipment Order.

e) Regularization of export declaration

Interested parties request regularization in the export system by presenting a customs declaration (DUA) within fifteen (15) days following completion of the last shipment.

8. Taxes and other charges

a) On imports

i) Ad-valorem

Aim of the Tax:	This tax/tariff duty is charged on the importation of goods into the country.
Tax Base:	Value at customs determined on the basis of the WTO Valuation Agreement
Tax Rate:	Three levels: 4%, 12% and 20%

ii) Additional Tariff Surcharge

Aim of the Tax:	This tax is charged temporarily on the import of certain goods (e.g. malt, malt beer, wine from fresh grapes including stump, grape must, hard yellow corn, sugar, etc.).
Tax Base:	Customs CIF value
Tax Rate:	5% Ad-valorem on the CIF value

iii) Selective Consumer Tax or Luxury Tax (ISC)

Aim of the Tax: This tax is charged on imports of certain goods such as fuels, liquors, vehicles, soft drinks, beer, cigarettes.

Tax Base: Variable

Tax Rates: See table below

TABLE 37
CIGARETTES

Tariff Headings	Cigarettes made from	New Soles
2402.20.10.00	Black tobacco	S/. 0.025 per cigarette
2402.20.20.00	Standard Virginia tobacco	S/. 0.050 per cigarette
2402.20.20.00	Premium Virginia tobacco	S/. 0.100 per cigarette

Source: Author.

TABLE 38
DIFFERENT PRODUCTS
(In percentages)

Product	Tax rate (%)	Tariff heading
Soft drinks	17	
Natural or medicinal mineral water	17	2201.10.00.11
Bottled water without gas		2201.90.00.10
Ethyl alcohol and denaturalized spirits, of any proof	20	2207.20.00.00
Beer	75	2203.00.00.00
Vehicles	0-30	

Source: Author.

TABLE 39
FUELS

National subheading	ISC Code	Products	New soles per gallon
2710.00.19.00	01	Gasoline for engines of up to 84 octane	S/.2.05
2710.00.19.00	02	Gasoline for engines of more than 84 octane and up to 90 octane	S/.2.68
2710.00.19.00	03	Gasoline for engines of 90 to 95 octane	S/.2.95
2710.00.19.00	04	Gasoline for engines of over 95 octane	S/. 3.25
2710.00.41.00		Kerosene	S/. 0.47
2710.00.50.10		Gas-oils (Diesel 2)	S/.1.31
2710.00.50.90		Gas-oils (all others)	S/.1.31
2711.11.00.00		Liquid petroleum gas-natural	S/.0.47
2711.12.00.00		Liquid petroleum gas-propane	S/.0.47
2711.13.00.00		Liquid petroleum gas–butane	S/.0.47
2711.14.00.00		Liquid petroleum gas–ethylene, propylene, butylenes and butadiene	S/.0.47
2711.19.00.00		All others	S/.0.47

Source: Author.

iv) General Sales Tax (IGV)

Aim of the Tax:	This tax is charged on the import of goods into the country.
Tax Base:	Amount resulting from the sum of the customs CIF value, plus the tariff duties and other taxes charged on the import.
Tax Rate:	16%

v) Municipal Promotion Tax

Aim of the Tax:	This tax is charged on imports subject to General Sales Tax (IGV)
Tax Base:	The same tax base as for General Sales Tax
Tax Rate:	2%

vi) Antidumping and countervailing duties

Aim of the Duty:	Antidumping duties are applied to certain goods whose "dumping" prices cause or threaten to cause damage to Peruvian production, as determined by prior resolution issued by the Consumer Protection and Fair Business Practice Institute, INDECOPI. Countervailing duties are applied to counteract any subsidy granted directly or indirectly in the country of origin, when this causes or threatens to cause harm to a Peruvian product, providing that a prior resolution to this effect has been issued by INDECOPI.
Tax Base:	Amount of the FOB value, as stated in the inspection certificate or commercial invoice, as applicable.
Tax Rate:	Variable

b) On Exports

Merchandise exports are not subject to duties or taxes of any kind.

i) Nationwide tele-dispatch

In its Fourth Complementary Regulation, the Regulations of the General Customs Act (Supreme Decree No. 121-96-EF) established the nationwide start of the automated customs clearance system as from January 1998.

From 17 February 1997 onwards, the automated customs clearance system (tele-dispatch) is mandatory for customs brokers operating within the jurisdiction of the Maritime and Airport Customs Offices of the port of Callao.

To implement the system nationwide, an operational method has been developed allowing customs brokers to transfer information to the customs office on declarations, shipment orders, etc., using the INFOVIA facilities (it is important to note that this involves no cost, either for traffic or for access, and the user only pays the cost of a local telephone call). At the same time, this model does not require changes in software by customs brokers or by their software suppliers.

The model allows clearance, through the same procedures, with all customs offices and all customs brokers across the country, even if the latter operate centrally or have decentralized offices.

ii) Customs procedure methods

- **Centralized process:**

The customs office network server would be physically located at customs headquarters, so the transfer of information by customs brokers (tele-dispatch) would be made

directly to headquarters and vice versa. The operations office will have all consulting tools and standard updating through the existing link. Nonetheless the change to this method of operation does not affect documents already in process in any customs office.

- **Decentralized process:**
  The customs network server will remain in its present location.

The customs offices of Pisco, Salaverry, Arequipa, Cuzco, Puno, Chiclayo, Chimbote, Pucallpa and Tarapoto are already operating with the centralized method, resulting in a noticeable improvement in the service and providing transparency to users.

iii) Tele-dispatch service operations

To provide the tele-dispatch service, customs will activate the mail server (based on its internal standard, Lotus Notes) in each office, and these in turn will manage electronic mailboxes, extract and prepare messages, and validate the DUA (Declaración Única de Aduana) and O/E (Shipment Order) for subsequent acceptance or rejection.

Centralized offices will use the mail server used at headquarters, while the decentralized offices will use the server located at their installations. There will be mailboxes in each mail server for customs officials and for all customs brokers requesting the service. These same servers will provide the mail service for each customs office department.

The client mail module (provided by customs or by third parties) will be installed on the customs brokers' computers, making it possible to select mailbox destinations and to send messages. Customs brokers will be able to collect messages that have arrived at the mailboxes of:

- The Lotus Notes mail servers in the customs offices.
- The UNIX mail server installed at the Callao Airport Customs Office (Aduanet mail).
- The mail servers of third parties (Internet service providers, Association of Customs Brokers, etc.).

Customs brokers operating with the Maritime Customs and Callao Airport Customs may continue to use their current procedure or else use the new method. In order to operate with customs offices in the provinces, the specifications detailed in this document will have to be adjusted. Customs brokers considering it convenient may apply for mailboxes allowing them to send tele-dispatch messages to the aforementioned customs offices.

iv) Hardware and software requirements

In order to use tele-dispatch nationwide (regardless of the procedural method used by any given customs office), a customs broker will require the following:

- PC 486 or higher
- Windows 95 operating system or higher
- Access to Infovía (free service supplies by Telefónica del Perú)
- A conventional telephone line
- A modem with standard 9600 bps or higher (MNP)
- Client mail software (provided by Customs or third parties)

v) Institutional issues

- **Standards: EAN PERU**

In Peru, EAN-PERU functions as a chapter of EAN International, which along with UCC, manages the EANUCC system and the EAN.UCC Global Standards Management Process (GSMP). UCC functions as a primary resource for business and industry developing worldwide

standards for identification codes, data carriers, and e-commerce. The EANUCC system enables companies of any size, industry, or geography to communicate in The Global Language of Business™ in over 140 countries worldwide. Collectively, over 1 million member companies around the world use these innovative business tools to drive costs out of the supply chain and improve business productivity and efficiency.

EAN PERU, a member organization of an expanded EAN International, is a voluntary standards organization tasked by its board of directors with co-management of the EAN.UCC System and the Global Standard Management Process (GSMP). The EAN.UCC System standardizes barcodes, EDI transaction sets, XML schemas, and other supply chain solutions for more efficient business. By managing the assignment of company prefixes and coordinating the accompanying standards, EAN International and the Uniform Code Council maintain the most robust item identification system in the world.

Technically, EDI involves electronic transfer of documents from one computer to another. Such documents need to be structured to obtain agreed, internationally standardized messages. The purpose of EDI is to manage the flow of information inside complex systems, such as those regulating the flow of raw materials, inventories and finished products along a supply chain. Although EDI allows a company to carry out its electronic transactions more efficiently, it cannot only be seen as a strictly technical project. More than a technology, it is an objective itself; EDI is a tool that can actually be used to redraw the information generated in the business processes.

The main difference between e-mail and EDI is that the data transmitted in an EDI project is in standard format, whereas that transmitted in e-mail is in free format. Messages transmitted via EDI adhere to international standards, which can be understood in any part of the world. Also, EDI messages are usually documents that are transmitted from company to company.

The Technical Committee of Code and Electronic Data Exchange Normalization (EDI) at INDECOPI prepared a new Peruvian Technical Standard, based on the standard ISO/IEC 17799:2000 INFORMATION technology, a code of practice for information security management.

This new Peruvian Technical Standard makes recommendations for managing information security which can be used by people responsible for beginning, implementing, and maintaining security in an organization. It aims to provide a common base for developing security norms inside organizations and —being an effective practice of security management— to provide trust in relationships between organizations. The recommendations on this standard should be chosen and used in agreement with the applicable legislation on this issue.

- **Public key infrastructure**

The technologies, algorithms, and infrastructures of public/private keys (PKI) are examples of technologies and policies that are emerging as “de facto” standards for security in information exchange.

Headed by electronic trade and the need to assure Internet communications, PKI is maturing as a security solution in many sectors.

An public key infrastructure is a system for delivering certificates and cryptographic keys that facilitates security in financial and economic transactions and the exchange of sensitive information between mutually unknown people. A PKI provides privacy, access control, integrity, authentication, and support in computer applications and electronic trade transactions.

A PKI will administer the generation and distribution of public and private keys; and it will publish public keys including the identification of users in public electronic charts (i.e. directory services x.500). PKI provides a high degree of trust, keeping the private keys secure. Public keys are connected to their respective private keys, and the two combined, identifies the correct person.

A PKI is built from different well-known systems known as Certification Authorities (CA), which are configured logically in a three-level structure. Each identification, along with a user's public key, is located in a message (Certificate). CA users sign each certificate digitally and make their certificates available through public electronic charts (Directory services x.500) along with the certificates of the other users.

For example, the PKI of the Peruvian State will be set in standard commercial open protocols and algorithms. The standards will include the following:

- **Cryptographic security**

Security requirements for cryptographic modules, for the publication of standards of information processing of the entities published by the Peruvian State (taking FIPS 140-1 of the United States Government as reference).

To evaluate the cryptographic guarantee and the respective evaluation programmes by:

- **Cryptographic Algorithms**
  - Symmetrical algorithms
  - GIVE (dates encryption standard), 64 bits
  - Entrust technologies CAST, 128 bits
  - Asymmetric algorithms
  - RSA/MD5 and RSA/SHA-1 for digital signatures, 512/1024 bits for keys
  - FIPS PUB 180-1 and 186: DSA/SHA digital signature standards that are used internationally
  - RC2, MD2 and 3DES
- **Communication Protocols and Data Formats**
  - RFC 1777 LDAP (protocol of slight directory access)
  - ISO/IEC 8824 and 8825
  - Message specification S/MIME: PKCS security services for SPOILS formats
  - PEM (e-mail privacy)
  - MSP (message security protocols)
  - Unit of independent data protection (IDUP)
  - GSS API, RFC 1508
- **Networks**
  - TCP/IP
- **Infrastructure for the Storage of Certificates**
  - Directory service, X.500, and support for other directories or repositories that use the LDAP interface
- **Public Key Infrastructure**
  - Certified X.509 v3
  - Specifications for minimum interoperability for the PKI component
  - Sure exchange protocol (SEP)
  - Mechanisms of published keys GSS-API, RFC 2078

- **Intellectual property rights**

Although Peru was one of the first countries in Latin America to pass a law on intellectual property (1849), regrettably it is also a country with high indices of piracy in all its forms —books, CDs, name brands, software, etc. This is because it is not sufficient to have a regulatory scheme that establishes the protection of rights; mechanisms and tools are also needed for effective and efficient application of the law.

Although the Government has a duty to uphold and enforce intellectual property law, it is also the obligation of all members of society.

The National Institute for the Defence of Competition and Protection of Intellectual Property (INDECOPI) was created in November 1992, to promote a culture of fair and honest competition in the Peruvian economy, and to protect intellectual property in its various forms: ranging from trademarks and copyrights to patents and biotechnology. As a result of its autonomous and technical work in promoting fair and honest competition policies among the instruments of the Peruvian economy, INDECOPI is perceived as a service entity that promotes a culture of quality to achieve satisfaction for its customers: citizens, companies, and the State. Its mission is to promote fair and honest competition in Peru.

The organizational structure of INDECOPI highlights the need to present a uniform message promoting fair and honest competition in the market, recognizing the functional autonomy of the jurisdictional bodies that are responsible for applying specific policies. In this regard, four essential bodies can be identified: the Board of Directors, the Jurisdictional Bodies, the Economics Department, and the Administrative Department.

The quality system established in INDECOPI was created to formalize its efforts to achieve customer satisfaction by improving the services offered, and to fulfil the requirements established by ISO Peruvian Technical Standard 9001:2000

Among its technical duties, INDECOPI also helps the SME sector by holding a series of workshops on “Quality and standardization for SME competitiveness.”

Its aim is to help Peruvian SMEs improve in terms of quality, and raise their competitiveness to face the challenges and demands of domestic and international markets, making use of standardization as a fundamental tool in the current globalised world. This work is part of a national consultancy on awareness and dissemination of standardization topics for SMEs, which aims increase competitiveness in the SME sector.

V. Conclusion and Recommendation

A. Lessons learned on IT and information usage by SMEs

1. Information needs gap

The information needs of SMEs are not being met in a number of important aspects; and the existence of a significant information needs gap is hindering enterprise development.

The findings presented here suggest there is large information needs gap across a wide range of small enterprise activities. This can be best understood as the difference between the stated demand for information from entrepreneurs and their success in obtaining it. By far the greatest information gap, found in roughly three-quarters of all urban SMEs, was an urgent need for market information pertaining to new local customers, or the need to expand into export markets, or both.

Other important information gaps in the formal SME sector largely concern the key business constraints: information about internal and external finance, and information about sources of skill development and training. Similar information needs, —relating primarily to markets, money and skills—, were found in rural micro and very small enterprises. Overall, lack of the necessary information was reducing income and raising costs for SMEs.

2. Limited role for ICTs

There is only limited potential for information and communication technologies to overcome the information needs gap in the light of other information and non-information-related constraints faced by SMEs.

ICTs can also be seen to bring benefits to small enterprises. Studies show that they can reduce the time and monetary costs of business processes, and can improve their certainty and quality. Word processing remains the dominant application, while e-mail and spreadsheet use compete for second place, with web use slightly behind. Communication-based applications display the fastest growth rates, and ICTs can be of particular value in supporting communication since this addresses the relatively information-poor and isolated nature of the enterprise.

Demonstrable short-term benefits, however, were limited to enterprises meeting two criteria that were key determinants of whether or not ICTs were present and being used in an enterprise. Firstly, size: there was a threshold — typically expressed in terms of a few tens of thousands of US dollars of annual turnover, and therefore related to the concept of transition point, below which ownership of ICTs was very unlikely. Secondly, sub-sector: ICT use was concentrated in a few sub-sectors in which there were either common ICT applications within the primary value chain, or linkages, or both, with ICT-using suppliers or, particularly, customers.

For manufacturing exporters and the tourist industry, a strong Internet presence is already becoming a powerful and inexpensive marketing tool, both for raising the profile of the business and for rapid dissemination of information to potential and existing customers at home and abroad.

ICTs play a vital role in some small enterprises, but technological priorities are firstly for telecommunications services (phones for informal communication, fax for formal); other intermediate and literate technologies (radio, TV, newspapers, books); ICT-based communication applications (e-mail and the web); "reality-supporting" ICT applications (word processing), and only then other ICT applications, such as accounts.

3. SME access to ICTs

The SME share of the domestic economy is very large: 97.6% of all enterprises are small businesses, and they account for 42.1% of gross national product (GNP).

Nonetheless, SMEs are not incorporating information technology into their productive or organizational processes, thereby generating a phenomenon of resistance to technological change. Hardware and software costs, lack of training, and limited sources of funding to develop processes based on technology projects also influence this phenomenon. SMEs suffer restrictions in terms of Internet access as a way of improving their organizations, business models and competitiveness.

In our country, one of the main ways of accessing the Internet is through public tele-centres (cabinas públicas). It is therefore necessary to analyse this sector as a potential source of access and development of SMEs towards ICTs; 87% of users access the Internet through tele-centres. The tele-centre phenomenon has enhanced the country's image, as the number of Internet users reached 3.6 million in 2003. It has also reduced the digital divide by promoting knowledge and access to information technologies, generating 25,000 new jobs and investments worth up to US$ 50 million. Nonetheless, tele-centres are still not considered a technological potential for society, and this situation needs to be reversed to enable them to operate as business centres providing value-added services.

4. ICTs and advancement of employment

Information technologies affect labour productivity and the advancement of employment. In the latter case, the impact is direct when measured in terms of the percentage of the Economically Active Population (EAP) in the communications sector, and indirect through the supply of goods and services.

The communications sector has enjoyed sustained development since the 1990s. In this field, investment through private companies that undertake operational, maintenance, support, and design activities, —among other telecom-related activities—, have proven to be an important driving force in spreading this service.

Although such growth is remarkable, it is insufficient to satisfy market needs.

In fact, the promotion of youth employment is considered one of the main policy goals of employment promotion. In the ICT sphere, promotion of the use and application of free software can generate great opportunities for the development of a sector specializing in new software.

B. Policy and measures for SMEs and trade

1. SME size is not everything

Throughout this report there has been a consistent message that "small enterprises" are different. They are different in size, have different locations, work in different sub-sectors and, above all, have different needs. A balanced approach requires thinking about all these different needs but it also means that a single set of recommended interventions will not be suitable. Interventions need to be customized to particular enterprise needs.

SMEs that are survivors more often than not have characteristics that include: domestic-orientation, citizen-owned, operating in the informal sector, smaller, rural, with a concentrated customer/supplier base. For such firms, there is a sense that information is not that critical an issue. There are greater constraints relating to markets, money, skills and motivation. They have the least capacity to meet information needs, and are likely to want to rely most heavily on enterprise-support agencies to meet those needs.

SMEs with potential are more likely to be export-oriented, from the formal sector, larger, urban, with a diversified customer/supplier base. For such enterprises, information moves up the priority list and they have a greater capacity to meet their information needs. They need help in building business linkages. ICTs can be very valuable, and these enterprises should be the priority focus for ICT interventions: they are better placed than others to make use of ICTs, and they have a greater capacity to generate wealth, employment, exports, and innovations.

2. Enterprise networks

Equity plays a vital role in the information life of enterprises; and enterprises need help to build better networks of information-providing contacts. Generally speaking, as much linkages, the better and the greater their variety. The greater the flow of information along the linkages, the better. As noted, there is a need to build business linkages rather than social linkages, and business linkages to sources that are themselves well connected.

A corollary is that enterprise-supported public agencies should try to facilitate linkages between their client enterprises and other businesses, rather than between clients and the agency. Part of this would mean providing inputs (financing, training, technology, etc.) via existing private-sector suppliers rather than via the agency. Governments should not lend money or subsidize; they should enable existing financial institutions to lend money to small enterprises. Governments should not provide training; they should enable existing training firms to train small enterprises. In this way, more valuable business linkages rather than less valuable institutional linkages would be created. Other ways in which business networking can be promoted include:

- Arranging meetings between entrepreneurs, especially between potential suppliers and customers, for example at trade fairs.
- Creating enterprise clusters.
- Encouraging the growth of subcontracting.
- Monitoring schemes that link managers in large firms to entrepreneurs in small enterprises for the purpose of providing advice and support.

- Supporting the creation of private-sector trading firms that will sell small-enterprise goods.
- Supporting demonstrator enterprises: selected enterprises with good information/ICT practices that agree to give occasional presentations and assistance.

In all of this, the most powerful networks will be those based on a commercial authority rather than on an institutional authority.

3. Clusters

These conclusions highlight the need for Government to address systemic or market-failure constraints on cluster development. Public intervention should be catalytic and should not seek to create clusters just for the sake of it. The emphasis is on working through partnerships and networks to achieve outcomes that the market alone cannot achieve. Such networking and partnership initiatives can also benefit from an international dimension. Again, the integration of national, regional, and local initiatives and institutions is recommended; and further examination of best practices and countries' experiences is suggested in areas such as the role of universities and knowledge-intensive services in cluster development; regional attractors of knowledge-intensive foreign direct investment, and governance structures and means of evaluating cluster initiatives; help local actors implement cluster strategies primarily through schemes to stimulate collaboration between public and private research institutions, improve the availability of market information and strengthen co-operation among firms, for instance in the fields of market intelligence, design and branding, and technological and human resource development; encourage exchange of experiences at the national and international levels, especially regarding governance structures and the evaluation of cluster initiatives.

C. Policy for promoting e-commerce

1. E-commerce

In e-commerce, Internet use has changed the traditional way of doing business. While contracts are signed promptly, a variety of information on the market for goods and services is available. However, according to the e-commerce development index cited by Telefónica del Perú (2002), "Peru stands close to last place —precisely number 62— in a ranking of 75 countries", owing mainly to problems of self-assurance in this environment.

In spite of the various electronic payment mechanisms existing in the market today, credit and debit cards, scant use of this payment method persists in commercial operations transacted through the Internet, because users still do not trust this method.

2. E-government

Unquestionably, the implementation, development and sustainability of e-government contribute to the efficiency, transparency and effectiveness of governance. To achieve this, we need to understand the current situation of administrative procedures, the installation of electronic procedures for public contracting and procurement, definition of the State's Technological and Communications Infrastructure, and users' requirements.

In the case of administrative procedures in Peru, there is limited capacity for measuring the satisfaction of citizens' growing demands, because of factors such as a lack of mechanisms to provide solutions, and effective and immediate attention to citizens' demands and complaints; lack of a definition of minimum quality standards in public services; and the absence of clear and

specific criteria in applying regulations, thereby giving rise to abuse, discrimination, and corruption. There is also slowness in procedures and paperwork due mainly to obsolete mechanisms, lack of bylaws and defined basic structures, and a lack of operating procedures and public service manuals. This has impacted the timeliness of responses, and it has generated unquantifiable social costs resulting in nuisance, distrust, and a deterioration of the institution's image.

With respect to the installation of electronic procedures for public tenders, the e-government procurement system (SEACE) is operating, with the aim of increasing transparency and public access to tenders, thereby improving the Peruvian Government's efficiency in handling procurement through the installation of electronic selection, procurement, and contracting mechanisms.

Priorities in Peru include improving domestic connectivity, simplifying paperwork to achieve greater transparency in State procurement, establishing certification and digital signature (to be clearly identified to carry out transactions), integrating the State's systems (single portal), and preparing a methodology for administrative simplification, among other items.

3. Electronic government procurement for SMEs

As the government's electronic procurement presence grows in different ways, the participation of small businesses in this activity is critical if the government is to meet its small business procurement goals, headed by PROMPYME. Small businesses have successfully obtained a relatively large share of government procurement in the specific online procurement programmes launched by PROMPYME. At the same time, concerns about obstacles to small business participation in electronic procurements are still revealed in studies and surveys and by organizations representing and working with small businesses. These entities report that small businesses continue to face obstacles when participating in electronic procurement procedures with the Government, such as a lack of (a) technical expertise; and (b) knowledge about the Government's electronic procurement strategy. The key to success in terms of small business participation in government electronic procurements is that both parties — the Government and the businesses themselves — persevere in overcoming them and any future obstacles that may arise. The government has taken, or plans to take, actions to address some of these obstacles.

4. ICT infrastructure

There is notorious inequality in access opportunities to public telecommunication services between residents of the capital and the rest of the country. Lima and Callao account for the largest percentage of telecommunications services per 100 inhabitants: an estimated density of 13.8% in fixed telephony (subscribers), 23.30% in mobile services, and 6.88% in public telephony registered during the fourth quarter of 2003. These figures contrast sharply with those of the country's other departments —the most critical case being Huancavelica that displays rates of just 0.48% in fixed telephony (subscribers), 0.17% in mobile services, and 0.81% in public telephony.

Considering telephone services in relation to population density, 32% of the Peruvian population residing in Lima and Callao has access to 66% of the fixed telephone services, 70% of mobile services, and 52% of public telephony — while the other departments that comprise 68% of the population have access to just 34% of the fixed telephone services (subscribers), 30% of mobile services, and 48% of public telephony.

Analysis at the provincial level reveals stark contrasts between province capitals and the rest of the provinces. Such is the case of Lima, where the province of Yauyos displays a 0% penetration in fixed telephony (subscribers), and 0.48% in public telephony. Unequal access to telecommunication services is the cause of exclusion and digital divide in the country.

The installation of fibre optic networks is mainly confined to the coast, making the development of public and private services extremely difficult, especially for those that demand high capacity in data communications, which is fundamental to the information society.

Nonetheless, it is not enough to have efficient infrastructure; it is also necessary to guarantee conditions for citizens to access it.

5. Science, technology and human development

In our country, the current situation in terms of development of Science, Technology and Innovation (CT&I) is critical, characterized by a deterioration of its hitherto incipient capacity to generate, adapt, and transfer knowledge for social applications. This situation, which explains economic stagnation and the widening of the digital divide relative to other Latin American countries, could result in Peru's exclusion from the world development and the process of building the information society.

The fundamental problems of the current situation are:

- Deterioration in the quality of university education generally, and of researchers in particular, who are detached from CT&I institutions and socioeconomic reality, compounded by deficiencies in academic standards and shortage of educators of suitable academic level.
- Loss of investment opportunities because of unreliable systems for disseminating available technological options, or because of the absence of economic feasibility studies or both.
- Loss of research and training opportunities, because of a lack of quality projects, inter-institutional coordination, or flexible and efficient mechanisms to identify sources of cooperation and administration of scholarships, programmes, and contributions.
- Creation of isolated initiatives without clear perspectives, detached from a nationally integrated and coherent proposal.
- The main causes of the situation described above are as follows:
- Absence of a widespread perception of the importance of science and technology in national development and in troubleshooting critical social and productive problems. This has resulted in the State paying careless or scant attention to the issue, having neglected its important role as coordinator, organizer and catalyst of all national efforts in science and technology.
- Insufficient investment in R&D, despite the magnitude of global expense in CT&I activities. This reflects unreasonable expense levels among the country's CT&I entities.
- A nonexistent legal framework defining rules of engagement for the various instruments for development of science and technology in areas of special national interest, to actively promote human development and competitiveness in the national and international environment.
- Absence of a national CT&I policy with a strategic plan to guide and promote the actions of the various agents, with qualified leadership and the necessary institutional and legal support. The dispersed and disconnected emergence of initiatives has led to the creation of numerous organizations and networks with limited impact and scant stability.

- Private-sector participation is at a minimum in the generation, acquisition, and adaptation of products and scientific technological services, resulting in the loss of already scarce skilled workforce. Firms do not constitute a dynamic force in requirements for innovation. Large and medium-sized firms apply "turnkey" technologies that exclude local capacity from generating, adapting, or participating in the creation and incorporation of knowledge. Small firms do not have appropriate mechanisms to identify and channel their innovation needs.

6. The information technology industry

Peru has several comparative advantages, such as the skill of its professionals and the quality of its products (both in software and in ICT services), for which it enjoys certain acceptance in foreign markets. Comparatively speaking, the country has a cheap labour economy, and it is culturally and geographically close to markets where potential demand is immense.

The information technology industry earned revenues of US$ 559 million in 2003, with US$ 580 million projected for 2004. Hardware sales account for 53% of the market; software licenses and maintenance 12%; and services 35%. Projections for 2004 suggest that this distribution will broadly persist.

7. Hardware

The hardware market in Peru consists of equipment, parts, and imported spares. Peru does not have companies that can really be referred to as the "Peruvian hardware industry", although hardware assembly is becoming a very important business activity in the country.

In the case of computers assembled locally, which account for 49% of the total hardware market, value is added through transformation of the finished product and skill creation.

8. Software

The software market in Peru is relatively small. Most of the revenue (76%) comes from the sale of licenses and maintenance on imported software (i.e. software developed in other countries on which Peru does not own the intellectual property). The remainder of the licenses sold, come from software developed locally.

There is a software industry in the country with export plans, and the activity of this market has grown over the last three years. Software piracy is a threat to development of the local market; while it has been possible to reduce piracy indexes in the country, development of this industry is still at risk, for which reason redoubled efforts are needed to strengthen the audit and protection of intellectual property.

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